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# Worldwide Report

ENVIRONMENTAL QUALITY

No. 398

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25 May 1983

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No. 398

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WORLDWIDE AFFAIRS

NEW OIL REMOVER FROM SWEDEN READY FOR PERSIAN GULF OPERATIONS

Stockholm SVENSKA DAGBLADET in Swedish 12 Apr 83 pp 1, 7

[Article by Margareta Artsman: "Swedish Invention Against Oil Spills; Swedish Oil Removal Director: Mechanical Collection Most Sensible From Environmental Viewpoint"]

[Text] Prof Gosta Walin at the Oceanographic Institute in Goteborg is the man behind an invention which may lead to something new in oil removal.

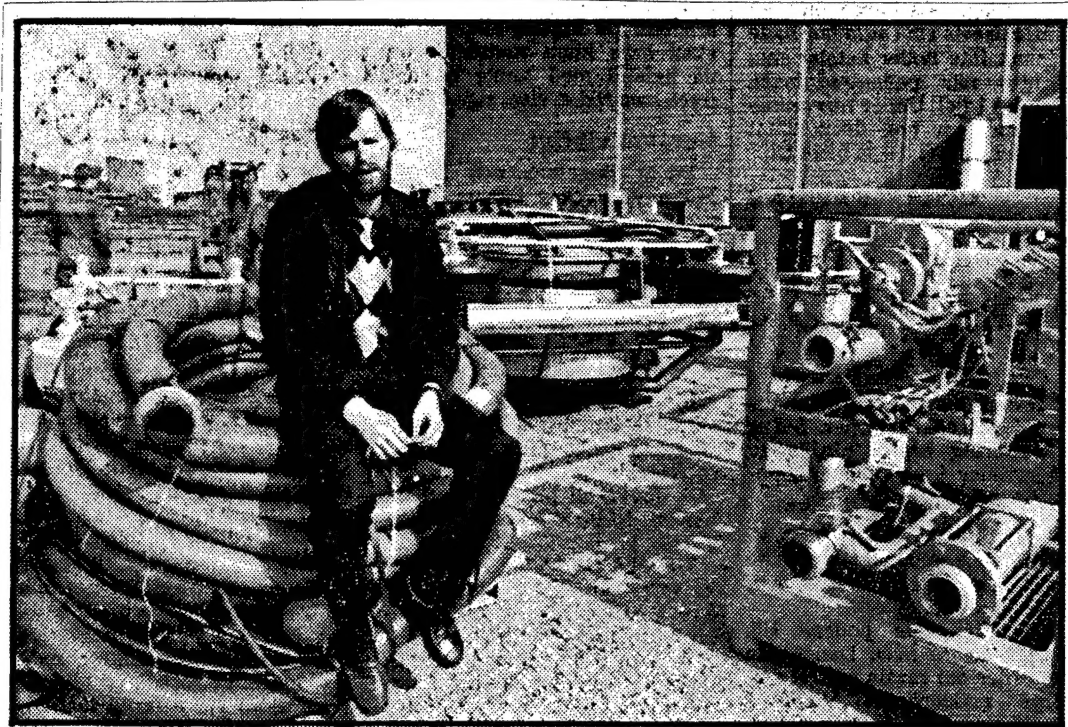


Professor Walin's invention will now be used in the Persian Gulf.

He has constructed an oil collector which will now be used in the Persian Gulf. The oil collector is built on the teacup principle, which means that Professor Walin has made use of studies of the rotation of fluids.

"Only in the last two years have things begun to happen in oil removal. We believe that the only way, and the most sensible one from the environmental aspect, of removing oil spills is by mechanical means."

These are the words of Stefan Mattson of the Mattson Companies in Uddevalla. On Wednesday morning two skimmers, that is to say oil collectors, which will be combined with booms from Sanera in Nordmaling, will be flown to Dubai on the Persian Gulf.



Stefan Mattson, vice managing director of Mattson Companies, next to a small portion of the oil cleanup equipment which has been sold to the Saudis.

The Mattson Companies have been working with Prof Gosta Walin's invention for 5 years, and deliveries will now begin in earnest to various parts of the world.

Under the skimmer is a rotor which sets the water in motion, thereby creating a suction of the surface water toward the center of the skimmer. The oil, which is floating on the surface, is sucked by a pump into tanks, either on a ship, or if the skimmer is used at a dock, directly to a reception facility on land.

Stefan Mattson is convinced that his is the method of the future for cleaning up oil spills. Furthermore, 98 percent of the oil can be reused, and it is possible to separate it from the water already during collection.

"We are very happy over this first order from the Persian Gulf and regard it as a pilot test. But more orders are said to be coming in."

Two types of oil collectors have been sent to Dubai, a smaller model which can collect 30 cubic meters of oil an hour, and a larger one with a capacity of 100 cubic meters. The larger model can survive heavy seas up to storm and is suitable for offshore use.

Instructors will accompany the shipment to Dubai, but the company has also had visits to Uddevalla for purposes of study.

Technical development will now continue in Bohuslan. Stefan Mattson can also envision larger sea-going combinations in the future.

"But in that case we would have to build them on order, not on speculation. Otherwise it would be too expensive."

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CSO: 5000/2568

# NEW WEST AUSTRALIAN GOVERNMENT EYES ENVIRONMENTAL ISSUES

## Criticism of Existing Legislation

Perth THE WEST AUSTRALIAN in English 12 Mar 83 p 9

[Article by E. A. Barker]

[Text]

**THE new Minister for Environment, Mr Davies, thinks that WA has the worst environmental legislation in Australia.**

He said yesterday that it was unenforceable in a number of areas.

"If anyone challenged it, it would not stand up," he said. "We would not have the power we thought we had because of conflicts with other Acts."

Mr Davies said that when the law was written 12 years ago it was considered good legislation.

But it badly needed updating and the Government would undertake a full review in line with its policy and according to modern thinking on environmental matters.

Mr Davies has also called for reports on how effective the administrative system has been since the director of the Department of Conservation and Environment, Mr Colin Porter, was removed as chairman of the Environmental Protection Authority.

Mr Porter was chairman of the EPA from March 1978 till the Court government introduced legislation in November 1980 barring the director from being chairman or a member of the EPA.

### Storm

The move caused a storm of protests from conservation groups and Mr Davies, who was then Leader of the Opposition, described the decision as a deliberate attempt to weaken the EPA.

Mr Davies said yesterday: "We were not happy about the change then and I want an assessment now of how it has worked."

He had asked for reports from Mr Porter, from the present chairman of the EPA, Professor A. Main, and from the department.

He did not think that the change had been administratively desirable because the EPA chairman should be as readily available as possible.

Professor Main put in a tremendous amount of work but he also had other work at the University of WA. The director was always available.

### Decision

In announcing the 1980 decision to remove Mr Porter from the EPA, Mr Ray O'Connor, who was

then Deputy Premier, said that the proposed changes would considerably strengthen the EPA as an independent advisory body and WA's leading watchdog on environmental matters.

Mr O'Connor said that under proposed changes no member of the EPA would have an obligation to the government of the day because none would be a public servant.

Mr Porter remained head of the Department of Conservation and the Environment under the changes. Mr P. Adams, QC, replaced him as chairman of the EPA and Professor Main became chairman in December 1981 after Mr Adams retired.

Mr Davies said yesterday that, though the Court and O'Connor governments said that WA had the best environmental legislation, he thought it was probably the worst in Australia.

The Act did not have the power that it purported to have and the department's powers were not clear.

### Overhaul

Labor promised dur-

ing the election campaign to overhaul the system of environmental review and management programmes which, it said, were coming under increasing criticism.

It said it would replace the system with one that subjected development schemes to a cost-benefit analysis, taking account of environmental as well as economic factors.

The former Minister for Conservation and Environment in the O'Connor government, Mr Ian Laurance, said yesterday that any legislation that had oper-

ated for so long needed review.

WA had been one of the first into the field and other States had now brought in legislation and updated it.

"I have no doubt that if we were doing it again we would do it differently," Mr Laurance said.

"The important thing in WA over the past nine years is that we have made the legislation work."

This had been achieved through co-operation and consultation with all parties, he asserted.

### Power Plant, Smelter Impact Study

Perth THE WEST AUSTRALIAN in English 22 Mar 83 p 12

[Text]

**THE proposed power station and aluminium smelter in the Bunbury region would not go ahead without a vigorous environmental examination of the sites, the Premier, Mr Burke, said yesterday.**

This would ensure a high standard of environmental safeguards and would protect the interests of residents and farmers in the area.

Mr Burke issued a statement yesterday after the Cabinet had been briefed by the Minister for Economic Development, Mr Bryce, and the Minister for Fuel and Energy, Mr Dowding, on recent trips to South Korea and Japan.

On his return to Perth on Sunday Mr Bryce said that though there were still many issues to be resolved, construction of the smelter could start as early as next year, with production in the second half of 1986.

He said yesterday that the Government was committed to step up efforts to pursue the project. He hoped to announce a Government initiative to boost project planning soon.

Mr Bryce and Mr Dowding reported that the Koreans remain enthusiastic about the project," he said.

"If all goes well, work on the development could start next year, though we do not want to raise unrealistic expectations and the timetable might be later than this because of depressed international economic conditions."

Mr Burke said that the previous Government had given the Korean firm ICC a big incentive to become involved in the power station-smelter project by offering a major contract for the Dampier-Wagerup gas pipeline, despite ICC's lack of experience in big pipeline work and the desire of local companies to be involved.

The Government would try to ensure a fair return to WA for the favoured treatment ICC had received.

# TREATY ON OIL POLLUTION NOT YET SIGNED BY AUSTRALIA

Canberra THE AUSTRALIAN in English 17 Mar 83 p 18

[Article by Captain Vic Sanderson]

[Excerpt]

THE International Convention for Prevention of Pollution from Ships 1973, as modified by the protocol of 1978 — or Marpol 73-78 as it is more commonly known — will come into force on October 2.

The questions are: what is Marpol and how will it work?

The problem of oil pollution of the sea, especially in ports and harbors, was recognised over half a century ago and during the 1920s and 1930s various countries introduced measures to control discharges of oil within their territorial waters.

International measures were considered but no agreement was reached until April 1954 when a conference convened by the UK adopted the International Convention for the Prevention of Pollution of the Sea by Oil.

The convention was deposited with the UK pending the establishment of the International Maritime Organisation (IMO), which took place in 1959, and the new organisation took over all responsibilities for the convention.

Marpol's entry into force was assured with Italy's acceptance.

The treaty required ratification by 15 countries before it could come into effect — Italy was the 15th.

Another requirement was that the combined merchant fleets of accepting countries

should represent 50 per cent of the world tonnage.

This tonnage requirement was reached last September when the 1973 convention and the 1978 protocol were ratified by Greece.

The 15 countries which have accepted Marpol 73-78 are Colombia, Denmark, France, West Germany, Greece, Italy, Liberia, Norway, Peru, Sweden, Tunisia, UK, US, Uruguay and Yugoslavia, together representing 53.65 per cent of world gross tonnage.

One country sadly missing is, as usual, Australia.

## Chemicals

It must be understood that the long delay in Marpol 73-78 instruments coming into effect is mainly due to the fact that these not only deal with pollution by oil, but also by chemicals, ships' garbage, sewage and other substances, involving highly complex technical problems.

Further, it is important to recognise that port States are required to apply the requirements of Marpol and the protocol to ensure that ships whose owners are not parties to the convention do not receive favorable treatment.

This can be construed to mean that parties to the convention will issue national legislation requiring foreign ship compliance with the convention when trading in the parties' ports.



## STATES' RIGHTS AT ISSUE IN IMPASSE OVER TASMANIAN DAM

### State Government Actions

Canberra THE AUSTRALIAN in English 15 Mar 83 p 3

[Article by Peter Blunden and Laura Veltman]

[Excerpt]

FEDERAL Liberal MPs in Tasmania yesterday joined the State's Cabinet in supporting construction of the Franklin River power scheme as Federal Cabinet prepared to discuss new legislation preventing the dam from going ahead.

The battle line was drawn up for confrontation when State Cabinet and the 10 federal MHRs and senators unani-

mously agreed that the Tasmanian Government had a constitutional right to make all decisions on the power scheme.

The 10 pledged to support the Tasmanian Premier, Mr Gray, on the issue and slammed the Federal Government attitude as "a basic attack on States' rights".

After the meeting, plans were unveiled for the establishment of a joint parliamentary committee on the rights of States.

### Plan for Court Challenge

Canberra THE AUSTRALIAN in English 16 Mar 83 p 6

[Article by Laura Veltman]

[Excerpt]

THE Tasmanian Government will challenge the Commonwealth to take High Court action over its plan to dam the Franklin River in south-west Tasmania.

Tasmanian Government sources said yesterday it would proceed with the dam until the Federal Government took legal action.

The State Government is planning to use legal arguments based partly on Section

100 of the Australian Constitution, which says: "The Commonwealth shall not, by any law or regulation of trade or commerce, abridge the right of a State or of the residents therein to the reasonable use of the waters or rivers for conservation or irrigation."

Section 100 is also part of the chapter in the Constitution on trade and commerce which is one of the grounds the Commonwealth is expected to use in arguing to stop the dam.

## Federal Cabinet's Stand

Melbourne THE AGE in English 17 Mar 83 p 5

[Article by Simon Balderstone]

[Excerpts]

CANBERRA. — Federal Cabinet yesterday held a firm line on the Franklin Dam issue, and the Tasmanian Premier, Mr Gray, will be told that the dam will be stopped.

A letter authorised by Cabinet yesterday will be sent to Mr Gray this week, telling him that the Federal Government is sure it has the constitutional power to stop the dam.

The letter will outline alternative job creating schemes as part of an economic package to be offered to Mr Gray when he is in Canberra for the economic summit on 11 April.

Federal Cabinet yesterday discussed a paper prepared by the Attorney-General, Senator Evans, on the constitutional powers of the Commonwealth in relation to the dam.

The report left Cabinet in no doubt that the power existed, and several avenues were discussed. Legislation is being prepared to stop the dam if negotiations fail.

Meanwhile, Mr Gray yesterday foreshadowed a start on another Tasmanian dam — estimated to cost \$150 million — within two years. Mr Gray mentioned the Hydro-Electric Commission's proposed Henty-Anthony scheme in an interstate television interview. He said work would probably start within two years.

A start on this dam — to be situated west of the Cradle Mountain - Lake St Claire National Park — would mean that the Gray Government had committed the State to power schemes totalling more than \$600 million before 1990.

## Hawke Letter to Gray

Canberra THE AUSTRALIAN in English 22 Mar 83 p 2

[Article by Marsali Mackinnon]

[Excerpt]

The Prime Minister, Mr Hawke, yesterday issued the text of a "stick and carrot" letter he had sent to the Premier of Tasmania, Mr Gray, on March 18 proposing solutions to the Franklin dam impasse.

Mr Hawke asked Mr Gray for a response "no later than Monday, March 28, 1983" but has not yet received a reply.

The letter details a package of job-creating construction projects to take the place of the dam costed by Mr Hawke during the election campaign at about \$435 million.

It also contains a warning for the Tasmanian Premier that Mr Hawke has clearly stated Labor's intention of stopping the dam project.

Mr Hawke's press office said the letter was "the first stage in negotiations on the dam".

## Gray Response

Canberra THE AUSTRALIAN in English 23 Mar 83 p 2

[Article by Robert Engisch]

[Excerpts]

THE Tasmanian Government has rejected the offer by the Prime Minister, Mr Hawke, to negotiate alternatives to the Franklin dam.

In a letter to Mr Hawke, made public yesterday, the Tasmanian Premier, Mr Gray, remained adamant the dam would go ahead.

Mr Gray said the scheme was primarily to produce electricity along with jobs.

"If it was a matter of simply creating employment then why redeploy the thousand people on the scheme?" he said.

In his letter to Mr Gray, Mr Hawke offered a week for negotiations on his alternatives.

In rejecting this Mr Gray again invited Mr Hawke to visit Tasmania to see the situation first hand.

The Tasmanian Opposition leader, Mr Wriedt, said that in refusing to negotiate Mr Gray

had thrown away a golden opportunity to win considerable economic concessions for Tasmania.

He said it was tragic Mr Gray had locked Tasmania into a position of non-negotiation.

Mr Wriedt said Mr Hawke had made public, and in the strongest terms, his concern for Tasmania.

This had now been thrown back in his face by Mr Gray without even knowing what Mr Hawke was prepared to offer.

Mr Hawke said last night he was "disappointed" by Mr Gray's rejection of negotiations on the Franklin dam issue.

"I will again be writing to Mr Gray renewing in even more specific terms the basis for the resolution of this issue," he said.

"I am disappointed at the Premier's categoric rejection of further discussions.

CSO: 5000/7567

# SOUTH PLANS PROJECT TO COUNTER SALINITY IN MURRAY RIVER

Canberra THE AUSTRALIAN in English 23 Mar 83 Supplement on South Australia  
p 14

[Article by Peter Ward]

[Text]

WIDESPREAD drought has caused more than 90 per cent of the population of South Australia to contemplate the future of its tenuous lifeline, the River Murray.

With water reserves down in key, up-river storages such as the Dartmouth and Hume dams, it is understandable South Australians are not particularly tolerant of plans to increase irrigation areas in the Murray-Darling system.

The Murray supplies water for more than two-thirds of the State's settled area, more than 90 per cent of its population, and most of its primary and secondary industry.

As far north as Woomera and as far south as Keith in the south-east, a huge network of mains fed by five big pipelines from the Murray and supplemented by a relatively meagre collection of reservoirs in the Flinders and Lofty ranges keeps the State's urban and rural regions alive.

In dry years — for instance, 1977-78 and 1982-3 — Adelaide has to take between 85 and 87 per cent of its water from the Murray.

Pumping costs are expected to exceed \$13 million to pour the water into an elaborate, multi-million-dollar system of nine reservoirs, two big pipelines and a web of minor ones.

The water-supply system operated by the South Australian Engineering and Water Supply Department contains almost 23,000km of mains and river pipes,

enough to stretch across Australia more than five and a half times.

One of the problems with domestic water supplies in South Australia is their high mineralisation and salinity. The typical salinity value of Adelaide's water is 400 parts per million, compared with Sydney's 90ppm and Melbourne's 50ppm.

Salt is a serious problem in the Murray generally, naturally rising into the river's water from saline groundwater and from uncontrolled run-back drainage in irrigation areas.

The World Health Organisation's drinking-water standard is set at 500ppm, citrus trees and vineyards die after 600ppm, the maximum concentration for urban and industrial use is 700ppm, the human taste threshold for salty water is 1000ppm, and the Murray River in South Australia has often exceeded 1000ppm.

Each year the Murray carries more than a million tonnes of salt across the State border.

The problem is an intensely political one, involving as it does the four Governments signatory to the River Murray Waters Agreement and subsequent acts.

They are the South Australian, Victorian and NSW State Governments and the Commonwealth.

But agreement to allow the River Murray Commission to make recommendations and

set objectives and standards for water quality now has been reached by the parties and is subject to ratification by the four parliaments.

Until the new River Murray Waters Agreement is passed, the commission will continue only to be able to make recommendations on water quantity.

In the next five years the South Australian Government intends to spend \$24.4 million on a big project designed to reduce salinity in the Murray.

The project, to be known as the Lock 2-Lock 3 Groundwater Interception Scheme, is designed to remove 80,000 tonnes of salt a year from the river.

The salt would be removed by diverting existing natural ground-water inflows away from the river.

According to the E and WS, the diversion of salt would reduce salinity below Lock 2 by an average of 13 per cent.

The Environment Protection Council of South Australia, one of the key watchdog bodies to express concern over the state of the Murray in recent weeks, has called for a long-term comprehensive strategy for the river.

It says the cost of salinity to domestic and industrial users and irrigators is about \$10 million a year.

"River regulation and permanent changes in water level have modified the habitats of natural fauna and flora, but little has been done to evaluate the impact of these changes," it says.

CSO: 5000/7566

QUEENSLAND PREMIER: PARK STATUS FOR ALL OF BARRIER REEF

Canberra THE AUSTRALIAN in English 14 Mar 83 p 1

[Text]

ALL of the Great Barrier Reef is likely to be declared a national marine park within days, after yesterday's call by the Queensland Premier, Mr Bjelke-Petersen, for the Federal Government to take immediate action.

While in Opposition, the ALP accused Mr Bjelke-Petersen and his Government of being obstructive in declaring the reef a park, saying only 14 per cent of the reef had been so protected.

But Mr Bjelke-Petersen has killed possible confrontation over the matter by calling for instant re-classification of the reef rather than the proposed gradual re-classification over the next two years.

Mr Bjelke Petersen's suggestion is for declaration of the Whitsunday, Townsville, and far North Queensland regions which would then be linked to the Capricornia section of central Queensland and the Cairns section which have already been included in the park.

"I want the whole reef declared immediately," Mr Bjelke-Petersen said at his home in Kingaroy, echoing the ALP's policy which states that the reef should be protected as a marine park at once, using the Great Barrier Reef

Marine Park Act passed in 1975 by the Whitlam Labor government.

The Act has so far been invoked in regard to the section of the reef already declared through agreements between the Queensland and Fraser governments over the past seven years.

Mr Bjelke-Petersen said he had asked the Commonwealth to declare the whole area a marine park six months ago.

The ALP were committed to declaring it a park because "they think this will be popular" but in fact "they are getting nothing done", he said.

Conservationists have criticised the Queensland Government for allowing tourist development of certain areas environmentally important as bird sanctuaries and breeding grounds, while claiming that pollution from mainland Queensland's rivers was affecting the reef.

If the reef was declared a marine park, this would not necessarily halt tourist development, because people had to have some access to the region, Mr Bjelke-Petersen said.

However, it would end fears about the Queensland Government granting oil leases in the area.

CSO: 5000/7566

BRIEFS

SATELLITE MONITORING OF ENVIRONMENT--SPACE-AGE satellite technology is being used to keep an eye on South Australia's diverse environment. The Remote Sensing Applications Branch of the Department of the Environment is the only government body in Australia solely employed in applying satellite data to resource management. The branch has a world-class analysis system to perform the digital analysis of data received from Landsat and other satellites. Next month the branch will begin using a color-jet ink plotter to enable speedy production of thematic maps direct from a computer display. Data from Landsat 3 is being used to prepare a map of South Australia's remaining native vegetation and detect changes in these areas. A technology-exchange program between the Department of Environment and Planning and the Ontario Centre for Remote Sensing, Canada, was established in February. More detailed satellite data, available soon from Landsat 4, is expected to enhance the department's ability to monitor the environment. [Canberra THE AUSTRALIAN in English 23 Mar 83 Supplement on South Australia p 8]

GREENING OF ADELAIDE--THE Greening of Adelaide has nothing to do with opposition to American nuclear weapons programs, or even to the Franklin Dam. The Greening of Adelaide project, commenced in 1981 by the Department of Environment and Planning, has as 1986 its target to further enhance Adelaide's attractive appearance with the addition of thousands of native trees. The success of the project to date is already noticeable in viewing the city from one of the many vantage points in the Adelaide Hills. During 1981-82 more than 20,000 trees and shrubs from the Woods and Forests Department and local flora park nurseries were planted. The schedule calls for a further 50,000 trees to be installed by 1986. [Excerpts] [Canberra THE AUSTRALIAN in English 23 Mar 83 Supplement on South Australia p 8]

CSO: 5000/7568

FIRM TO RAISE \$100 MILLION FOR TREE PROGRAM

Manila PHILIPPINES DAILY EXPRESS in English 2 May 83 p 10

[Article by Rosario Liquicia]

[Text]

THE National Industrial Tree Corp. (NITC), a subsidiary of the state-owned National Development Co. (NDC) is raising \$100 million as investment funds for industrial tree plantation projects it plans to develop throughout the country.

Trade and Industry Minister Roberto V. Ongpin said NITC is tapping three foreign financial institutions to be able to raise two-thirds of the \$100 million needed to support the ITP program. The balance will be raised through equity contributions from NDC, Ongpin said.

The three foreign financial sources are the Overseas Economic Cooperation Fund (OECF) with which the government has a pending loan application of \$33.3 million (for the ITP program); the Asian Development Bank (ADB), which recently granted technical assistance to the program and the World Bank.

THE funds to be raised, Ongpin said, will be invested in private logging companies intending to develop industrial tree plantations in their respective concessions.

Under the set-up, NITC will have a minority share in the joint venture while the timber license holder manages the project, Ongpin explained.

NITC expects to develop close to 200,000 hectares of industrial plantations in joint venture with private companies.

Earlier, 34 timber concessionaires were reported to have signified interest in taking part in the ITP program. The estimated total investment of these concessionaires according to pre-feasibility studies submitted to NITC, amounts to P1 billion.

At present, only the Paper Industries Corp. of the Phils. (PICOP) has extensive ITPs in its concession area in Bislig, Surigao.

CSO: 5400/4418



ENVIRONMENTAL STUDY ON PHUKET COMPLETED

Bangkok THE NATION REVIEW in English 31 Mar 83 p 30

[Text]

A STUDY on the environmental impact of mining activity off the southern island of Phuket has been completed, pending submission to the National Environment Board for a decision, informed sources said.

The study was ordered after a ban on mining in Patong Bay off Phuket including areas for which concessions had not been issued, such as Surin and Naihan Bays.

The study reportedly has suggested that a ban on new mining permits be imposed until a study on the quality of sea water in the area is

completed to ensure a proper level of pollution-free measures.

Sources in the mining circles have said they are not satisfied with the study because, as one leading miner put it, "The economic factor has not been taken into consideration in the study at all."

Miners have argued that although the environmental conditions are important, the study should also take into account the tremendous economic benefits involved.

They said that banning of mining in the area would mean a loss of revenue of several thousand million of baht.

The study was ordered after Prime Minister Prem Tinsulanonda decided on Feb 3, 1981 to ban mining within a radius of eight kilometres offshore and that no renewal of permits would be granted after mining to the west of Phuket expires in line with the licences issued earlier.

The decision prompted a leading mining tycoon, Fu Fukunlong, to sue the Department of Mineral Resources for damages of up to 1,400 million baht. Fu had been granted mining licences in areas affected by the order.

CSO: 5000/4328

## GUATEMALA

### CONTAMINATED RIVERS INCREASE COST OF PURIFYING WATER

Guatemala City PRENSA LIBRE in Spanish 13 Apr 83 p 6

[Text] All the rivers which supply water to the capital city are excessively contaminated, according to what Andres Casasola, director of operations and maintenance of EMPAGUA [Municipal Water Company] announced yesterday; he indicated that that raises the production price of drinkable water.

He added that these rivers serve as sewage disposal for the people living near the banks, and because of the lack of proper vigilance by the authorities, the rivers are also used as laundries, garbage dumps, and even dead animals are thrown into them.

That situation has caused EMPAGUA authorities to lay out large sums of money for the purchase of chemicals used for the purification of the vital liquid.

The water which arrives at the treatment plant is first analyzed to determine the degree of purity, which varies according to the time of year. Afterwards aluminum sulphate is added so that the suspended materials coalesce and fall to the bottom, where they remain.

After a process of clarification and making it drinkable, the water passes through a system of filters to disinfection with chlorine which sterilizes the product and leaves a residue which serves to guarantee that the liquid will arrive pure up to the house faucet.

Eng Sasasola Sandoval added that the use of chemicals is appropriately controlled in laboratories with trained personnel. These people are in charge of verifying levels of alkalinity, acidity, muddiness, color, taste and others, apart from bacteriological examinations.

When necessary, the employees of EMPAGUA are in charge of adding hydrated lime or other chemicals, such as sodium silicon fluoride of soda to prevent tooth decay in the infant population; copper sulphate, which acts as a coagulator; polyelectrolytes, and aluminum sulphate.

Eng Casasola Sandoval said finally, that in spite of everything, the public can be absolutely sure that the water which EMPAGUA sells is absolutely drinkable and of better quality than in most cities of the world.

9678

CSO: 5000/2025

## BRIEFS

WATER POLLUTION -- Bacteriological tests of the sea water opposite bathing beaches at the center of the country indicate a worsening situation in the winter season -- because of the flow reaching the sea by streams in a season when that flow is not maximally exploited. These details are included in a health survey which was conducted of waters at bathing beaches in the central district. The survey was conducted by the Health Bureau of the Central District. The central district health engineer, Mordekhai Fleisher reported that according to bacteriological tests of the waters in the summer, "the coastal waters have reached the most severe standards". Engineer Fleisher noted that the frequency of testing of the coastal waters is not according to standard, and that testing must be conducted in the bathing season at least four times per month, and in the winter season, at least once a month. In the report which was published yesterday it was also noted that health facilities at bathing beaches are not maintained in a proper form, and Health Ministry experts are recommending the prohibition of sales of drinks in glass containers in order to reduce the number of injuries from broken glass. [Text] [Tel Aviv MA'ARIV in Hebrew 4 Mar 83 p 6] 7075

## SALINITY, WATERLOGGING POSE SERIOUS THREAT TO INDUS BASIN

Kuala Lumpur BUSINESS TIMES in English 4 Apr 83 p 19

[Article by Mohammad Ziauddin in Islamabad]

[Text]

THE Indus basin, Pakistan's agricultural heartland, is under a serious threat of turning into a big salt lake in the next 30 to 40 years. It is suffering from the twin menace of waterlogging and salinity.

The hope of food self-sufficiency, which Pakistan hopes to attain in the next 10 years, will get drowned in the basin's ever-rising water table.

The unfortunate aspect of the problem is that the country has not been able to determine the annual rate of loss of agricultural land due to water logging and salinity.

The rough estimate is that about 100,000 to 500,000 acres of land are being eroded annually by waterlogging and nearly 16 million tons of salt add to the soil every year. There is, however, no reliable study to back up these figures.

The average slope of Indus is only one foot per mile. Therefore, there is no natural drainage relief for the irrigated area. On the other hand, the topography and the extent of the basin is such that easy disposal of saline effluents is not possible. Thus the water and salt imbalance in the basin continues to deteriorate.

### Tubewells

Meanwhile, Pakistan has spent nearly 7 billion rupees over the last 28 years fighting a seemingly losing battle against waterlogging and salinity.

Some two million tubewells dot the basin as evidence of that struggle. Without these tubewells which pump out water, the basin would have turned into a lake by now.

Pakistan is a semi-arid country and nearly 67 per cent of its total land receives rainfall below 10 inches. Over 60 per cent of the entire cultivable land in Pakistan is irrigated by artificial methods.

According to one estimate, nearly 45 million acres out of about 75.6 million acres are irrigated by canals, tubewells, open wells and tanks.

A recent paper on the problem states that nearly 66 per cent of cultivable land in the Indus basin is waterlogged (up to 10 feet water depth). About 35 per cent of the cultivable land has been designated as a "disaster area" since the water table in the area has reached up to five feet.

In 1954 FAO cooperated with the Pakistan government to counter the menace of waterlogging and salinity. But in the first Five Year Plan (1955-60), the reclamation aspect was accorded very low priority and only about 61 million rupees was spent on it.

The next Plan (1960-65) saw the preparation of a 10-year masterplan. The plan was reviewed by a team of the US experts as a result of which the Revelle Report emerged.

While the masterplan recommended a compre-

hensive approach, the Revelle Report opted for a selected approach and advised on concentrating on 25-30 project areas of one million acres each.

But shortage of funds prevented this plan from reaching its completion. In the first five years only about 250 million rupees was spent on it.

During the Third Plan (1965-70), the World Bank was also involved in the effort and an action plan was prepared.

But the plan target could not be reached because of funding shortages. In all, about 864 million rupees was spent during the Plan.

In 1973 a crash programme was prepared for reclamation of the entire irrigated area within 25-30 years.

Phase I of the programme covering 14.1 million acres was to be taken up during an 11-year period starting 1974 at an estimated cost of 5.4 billion rupees.

Planning for the remaining areas was able to be completed during this phase. In the first four years of the programme about 1.1 billion rupees was spent on the crash programme.

### Study

In 1979 the government felt the need for reviewing the land and water development programme in the country as a whole. Agreement was reached with UNDP for preparing a compre-

hensive masterplan for all the irrigated areas.

The study was assigned to the Water and Power Development Authority (WAPDA) with the World Bank as a supporting agency. The WAPDA report gives emphasis to ground water exploitation.

During the last three decades the country has thus prepared a diversity of plans, masterplans and actions programmes. In the process it has spent over seven billion rupees but with little success.

Some officials believe the salt problem can be controlled in the North-west Frontier Province by transporting the salt to the sea through rivers during the flood season. Meanwhile, the salt in Sind province could be disposed of by transferring it to the sea through left and right outfall drains.

For waterlogging, it is suggested that small and fractional tubewells be installed in the "disaster areas."

Also called for are water courses, afforestation on state land along canals and tributaries, maintenance and construction of field drains.

But all of this requires a huge investment, in an amount the government cannot currently underwrite. — Depthnews Asia

## SERIOUS DROUGHT SAID NO LONGER CONFINED TO SAHEL

London WEST AFRICA in English No 3428, 25 Apr 83 p 1037

[Article by David Achidi Ndifang]

[Text ]

CAMEROON, one of Central Africa's most stable countries, and a main source of food supply to her neighbours, including Nigeria, has witnessed a devastating drought and widespread bush fires.

In the Northwest and Northern provinces, cattle and sheep have been starved to death for lack of green grass to eat and water to drink.

Whole rivers, streams, springs and fountains have dried up. Vegetables and fruits hitherto found all over the country have suddenly become scarce. People, as well as cattle, sheep and other domestic animals, are starving to death in large numbers.

Gone are the days when talk of drought is limited to the Sahel region. For the Central African sub-region, such disasters are usually limited to the Republic of Chad. This year it has spread out through most countries just like a wild wind. We have seen nothing but sunshine and an intense dry Harmatan throughout Cameroon. Most of the illiterate farmers and people have been talking of the end of everything here on earth.

This correspondent has just returned from a tour of both the North and Northwest provinces of Cameroon. On the hills of Bamenda, Maroua and Kapsiki, I saw cows and sheep staggering to an untimely death. I even saw dead cows in the streets of the big towns down south, and villagers flocking into purchase food, a thing unknown since I was born about forty years ago. Seedlings, be they yams, cocoyams or even maize have been burnt in the soil for lack of rain.

The government, which prides itself on encouraging agriculture, has remained confidently silent that its agricultural crusade is paying dividends. But the contrary is the case. One affected villager up North hinted to me in confidence that we, too, need some sort of help and if not then a total stop in Cameroon on the exodus of food to neighbouring Nigeria, Gabon, Chad, CAR, the Congo and last but not least, Mbazogo's Equatorial Guinea.

There is very little for us here in Cameroon to eat, yet canoes, planes and trucks leave by night for neighbouring countries where food fetches more money.

As I file this report, just a little rain is trickling in with the threat of a lot of thunder storms and hail stones. Thunder will exacerbate the problems the drought has already caused.

If this year's situation persists, then some of our Central African countries, including even Cameroon, shall not hesitate to join the "Interstate Committee for the fight against Drought" not only in the Sahel region but in the whole of Africa, north and south of the Sahara.

## ETHIOPIA

### BRIEFS

RAIN DAMAGE--Dessie (ENA)--Torrential rains accompanied by gales and hail-storm have caused extensive damage to houses and crops during the week in different parts of Wollo region. Seven rooms and an assembly hall belonging to a peasants' association and 20 thatched roofed and corrugated iron sheet houses were rendered useless by the heavy downpour within 05 kebele in Dessie-Zuria district. Grain crops in the field within the same kebele have also been damaged. In 02 kebele in the same district, 15 families lost their homes and property by the heavy rains. Meanwhile, coffee, banana, other fruit plants and vegetables grown within the confines of 12 peasants kebele associations in Kalu province, Wollo region, were entirely washed away by heavy rains which fell for two consecutive days earlier this week. [Text] [Addis Ababa THE ETHIOPIAN HERALD in English 15 Apr 83 p 6]

CSO: 5000/162

KENYA

BRIEFS

NJORO RUNS DRY--Njoro township has been hit by a serious water crisis. An on-the-spot check by the NATION yesterday revealed that the shortage has been on since December last year. Residents are forced to use unclean water from the Ndarugu River, a seasonal stream near the town. Businessmen in the town complained bitterly, especially butchers who said they had been forced to close. Two residential estates, Bondeni and Jewatho, are the most affected. In a circular dated March 26, the Public Health Officer for Molo and Njoro divisions closed all food premises at Njoro town. [Text] [Nairobi DAILY NATION in English 9 Apr 83 p 5]

CSO: 5000/160

## BRIEFS

DROUGHT, FOOD AID PLANS--Maseru.--Lesotho has announced plans to overcome the drastic effects of the drought in the country, the Lesotho Minister of Foreign Affairs, Planning, Employment and Economic Affairs, Mr E R Sikhonyana said yesterday. Speaking in the National Assembly, the Minister said that since the declaration last month of a state of national food emergency by the Prime Minister, Dr Leabua Jonathan, the Government had already taken several measures. These include establishing a sub-committee of "monitor the situation and to ensure that necessary relief action has been undertaken to assist affected people". A committee of officials has been established to collect data on the situation, propose relief measures and ensure implementation of these measures. The Minister said Japan had already offered 600 tons of rice, Taiwan 1 000 tons of maize and Sweden had given R350 000 towards implementing a report on supplies and a feasibility study on strategic oil reserves.--Sapa. [Text] [Johannesburg THE CITIZEN in English 23 Apr 83 p 8]

CSO: 5000/160



# WATER LEVEL OF DAMS STILL BELOW NORMAL

Windhoek WINDHOEK OBSERVER in English 16 Apr 83 p 40

[Text]

**WINDHOEK:** The country's biggest artificial lake, Hardap, did get a bit of water on Tuesday of this week when the Fish River started flowing, albeit only in a limited way, on Monday.

The inflow pushed the dam's percentage from 14,0 to 14,3 percent, which means that roughly one-million cubic metres of water over a period of 36 hours, bringing the present reading to 42,790-million cubic metres.

That was more or less the only noteworthy development as far as rain is concerned during the week. A joker was reported in a section of the Windhoek press, as being a rainmaker, and there was a farcical touch to his grotesque talk when people started laughing in the streets, telling one another that Usakos was so inundated with water that traffic on its way to Swakopmund could not pass. Nothing happened there except that 8mm of rain fell over a period of nine days.

The Department of Hydrology of Water Affairs, reported the latest readings of the major dams for the week ending Monday 08h00 as:

- ★ Naute in the Löwen River near Keetmanshoop 38,4 percent (32,118 million cubic metres)
- ★ Von Bach in the Swakop River, at Okahandja, 42,1 percent (21,038 million cubic metres)
- ★ Swakoppoort Dam in the Swakop River generally described as the sister dam of Von Bach, 70km to the west, 4,3 percent (2,945 million cubic metres)
- ★ Friedenau south west of Windhoek 21,3 percent, (1,433 million cubic metres)
- ★ Goreangab just west of Windhoek 45,5 percent (2,361 million cubic metres)

★ Avis Dam 40,9 percent (0,997 million cubic metres)

★ Daan Viljoen at Gobabis 6,9 percent (0,018 million cubic metres)

★ Tilla Viljoen at Gobabis 4 percent (0,050 million cubic metres)

★ Omatako 70km to the north-east of Okahandja in the Omuramba-Omatako 10,6 percent (4,256 million cubic metres)

★ Otjivero Dam in the Nossob River at Omitara 31,3 percent (2,194 million cubic metres)

No reading has been given for the Olushandja Dam in the Ovamboland region.

## Photo Caption

A very recent picture of the Hardap Dam which is now at its lowest level for more than 20 years.

The capacity of the Dam will be reached in October, unless of course freak rains cause flash floods in the Fish River, an unlikely event.

That capacity, explained a Water Affairs official, means that water can no longer flow from the lake, but that what is left, will have to be pumped. There is a great danger for the irrigated lands below the Dam, comprising more or less 330 hectares of cultivated smallholdings.

[Photo not reproduced]

CSO: 5000/161

# WATER OFFICIAL DENIES SUBSIDIZATION OF ROSSING URANIUM

Windhoek WINDHOEK ADVERTISER in English 30 Apr 83 p 18

[Text]

**WINDHOEK:** The Secretary for Water Affairs in South West Africa, Mr Jan Jordaan, said that it was wrong as repeatedly stated by the Windhoek Observer, that the tax resources of this country were subsidising Rössing Uranium Limited by means of paying for all the physical infrastructure to provide water supply at the rate of 20 000 litres a day to the uranium mine in the desert.

Although it was true, said Mr Jordaan, that the tax resources were furnishing the money not only for the waterline, but all the booster stations and the pumping installations at the sources being tapped, the entire design was not there for the purposes of Rössing, but part of a national water scheme.

★ In other words, aside from the fact that today towns like Walvis Bay and Swakopmund were provided with ample water, one day when water was received from the great perennial rivers in the

north, the existing booster and pipeline installations in the desert would serve to pump water from the north to the coast - irrespective of whether Rössing was there or not.

Mr Jordaan had a frank talk in the conference room where he outlined the entire situation with emphasis on the aspect that it was erroneous to state that the tax resources were subsidising Rössing's water supply.

He said that Rössing was presently paying 35 cent per kilolitre, generally known as cubic metres, in comparison with 38 cents for residents in Windhoek.

But do not lose sight of the fact, he said, that the consumer in Windhoek was actually paying less, because he was already enjoying the benefit of a reticulation system inside of the municipal area, whereas in the case of Rössing, the Department of Water Affairs took the water to a certain point, and from there Rössing had to pay for the further reticulation - providing its

own pumping systems and pipeline system, which if added to the 35 cent would push the price of water higher than Windhoek.

But that was just a minor issue explained Mr Jordaan, saying that he would like to do away with the image that had been created that the gigantic Rio Tinto Mine in the desert, enjoyed water supply subsidised by the ordinary tax payer.

Millions had been spent, he said, not only to provide Rössing, but to establish a physical structure there which would one day join with the national water carrier systems planned for the distant future, when the Kunene and the Kavango were pumped to the south - such as the Eastern National Water Carrier, presently under construction from Grootfontein to the Omatako Dam was but part of the greater systems to pump water from the Kavango to Windhoek in the years to come.

Swakopmund and Walvis Bay would have never enjoyed the rate of development it had in recent years if it were not for the water development which has provided Rössing and those two towns at the same time.

There was no such thing as building a pipeline at the cost of millions and millions of Rand because the subterranean line was defective and had to be replaced just for Rössing, it was but a step,

he explained once more, for the national water carrier. In fact, Rössing was a blessing in disguise he said and explained that if it were not for Rössing then this section of the greater national scheme would probably have been delayed longer.

The entire water supply system in that region had to be viewed nationally and regionally and not one factor selected from it such as Rössing.

Mr Jordaan then pointed out that there was a written agreement between the Government and Rössing on the water supply. In terms of the written provisions of that agreement the Government could at any time re-adjust the price of water. At the same time the provisions contained a liability clause which was very interesting he said.

★ The liability clause provides for an anticipated lifetime of the uranium mine, and the State says what it has invested. Things are then calculated on the basis of consumption, capital investment and a contract is entered into which sees to it that unless Rössing does consume 20 000 cubic metres of water a day for

X number of years, it becomes liable to pay what it did not utilise - in other words, if its consumption of water falls short of the anticipated figure it still becomes liable for the full amount.

That contract, Mr Jordaan said, guaranteed that the State would not lose on capital redemption through its physical structure, provided to give Rössing water and to become part of the national carrier system in the long run.

Mr Jordaan said that he could only agree that in the absence of proper understanding and knowledge of such agreements, the mistake could easily be made to infer that Rössing was being assisted by the rate-payer to get water.

#### Contamination Closely Watched

WINDHOEK: In a briefing with Mr Jan Jordaan, Secretary for Water Affairs, the Engineer who is in charge of the water supply system of the country, said that he wanted to comment on reports from time to time about contamination of the subterranean water as a result of operations by the Rössing Uranium Mine.

There were scientists visiting here and who afterwards had written reports on their findings. Not a word of what these visiting scientists have said about contamination was true, he said. The country was assured that a scientific look was not taken from time to time, but continuously. The entire subterranean water in the vicinity of the Uranium Mine was monitored. It was an intensive project of monitoring which was done collectively by the Department of Water Affairs and Rössing Uranium Limited.

There was a prescribed programme and in accordance with that the monitoring was being done. It was a scientific highly administered programme, and as far as subterranean water in that region was concerned, he could state emphatically that everything was under control in regard to contamination.

## NAMIBIA

### BRIEFS

UIS WATER AUGMENTED--Windhoek--Asked if there was substance in the report that the Uis tin Mine which was a wholly-owned subsidiary of the Industrial and Steel Corporation of South Africa, was to get an improved water supply system at a cost of R3-million, Mr Jan Jordaan, Secretary of Water Affairs said that provision had been made for a system in progress, to meet conditions of emergency created by the drought. It could be described as a supplementary system. It was a quick coupling system making provision for the extension of the lines in the Omarusu River up to a depth of ten kilometres to make use of subterranean sources in the river. Those which were utilised up to a depth of five kilometres were not ample, as a result of the drought. The moment the river started flowing once more, the quick coupling system provided for reducing it back to five kilometres. He frowned and looked startled when a reporter put it to him: "As you know Mr Jordaan, Uis does not pay tax." He was silent for a few seconds and said that he could not comment on that. [Text] [Windhoek WINDHOEK OBSERVER in English 30 Apr 83 p 18]

CSO: 5000/177

SOUTH AFRICA

WATER RATIONING IN DURBAN, PIETERMARITZBURG SCHEDULED

Johannesburg THE CITIZEN in English 22 Apr 83 p 5

[Article by Chris Steyn]

[Text] Water rationing allowing households only 400 litres of water a day will be imposed on domestic consumers in the Durban and Pietermaritzburg metropolitan areas from May 1.

These tough new measures were announced yesterday by the chairman of the Natal Emergency Water Committee, Mr Ray Haslam.

The stringent restrictions mean that houses are allocated 400 litres of water a day, while flats will receive only 200 litres a day.

Mr Haslam said the committee hoped that with this rationing system the area would have enough water to last until the start of the next rainy season.

Commerce, industry, hospitals, nursing homes and other public service institutions would not be rationed at this stage.

Mr Haslam warned that fines for overstepping the rations would be very heavy.

The chairman of the Natal Water Board, Mr R Phelines, told THE CITIZEN that the present water restrictions were not adequate to see the province through to the next rainy season.

The board was thus compelled to make a recommendation to the Government to cut the present 70 percent water allocation for all purposes to 50 percent. Such severe water restrictions made rationing in cities inevitable.

A spokesman for the Rand Water Board told THE CITIZEN yesterday that changes in the present water restrictions were imminent.

The Vaal Dam was under 31 percent full and present measurements to use only 80 percent of last year's allocation did not seem to be achieving desired results.

Proposals for alternative measurements would be announced today, the spokesman said.

The rest of the country remains in the grip of the drought, worse in certain parts than the 1933 drought.

Applications for regions to be declared emergency grazing areas were being received at an alarming rate, according to the chairman of the Department of Agriculture's Drought Aid Scheme.

Mr Harry Hatting said applications were being received every day.

The real extent of the drought would only be released later as farmers who had planted summer crops would only know their requirements by August when they would apply for consolidation of debts.

The chief forecaster at the Weather Bureau in Pretoria, Mr G Schultzer, told THE CITIZEN that more areas in the country had been affected by the present drought than by the 1933 drought.

The Eastern Cape did not experience drought in 1933 and 110 percent of its normal rainfall fell during that period. This year the Eastern Cape has had only 60 percent of its expected rainfall.

The Pretoria/Witwatersrand and Eastern Highveld areas had 70 percent of their expected rainfall in 1933. This year it has had 60 percent of the normal rainfall for the area.

The North-Eastern Transvaal is suffering its worst drought since 1927 when it had 58 percent of its expected rainfall.

CSO: 5000/158

DURBAN HOMEOWNERS FACE TOUGH WATER RESTRICTIONS

Durban THE DAILY NEWS in English 22 Apr 83 p 1

[Excerpt] HOMEOWNERS who face tough water restrictions were advised today: Change your lifestyle.

This is the message from the City Engineer's Department, following yesterday's announcement of drastic water restrictions in the Durban and Pietermaritzburg metropolitan areas from May 1.

Householders will have to get used to using the same water for several purposes, says Mr R. Hendry, Assistant City Engineer (Works).

"We'll have to learn a new way of life."

Bath water, for example, should be used to wash clothes and then to fill up toilet cisterns or to wash cars. Any remaining water could be used in the garden.

And when washing dishes, a plastic basin could be used, Mr Hendry said. Dirty water could then be poured over flower beds.

Cardboard plates and cups as well as disposable nappies would be-

come a part of a new lifestyle.

Mr Hendry said that although the new regulations would affect people's comfort, it would not be that difficult for a household to manage on 400 litres a day. He said this was equivalent to two full 44-gallon (200-litre) drums.

"That's a fair amount of water."

On average, a bath would use about 40 litres — this would have to be used by no less than two people — while a shower would use only about 10 litres. A full kettle used two litres of water.

Mr Fred Munroe, circle engineer for the Department of Water Affairs, said he also thought 400 litres was a reasonable quota.

"One can maintain a reasonably high degree of hygiene with this," he said.

Meanwhile, swimming pool-owners have been advised to cover their pools if they cannot top them up.

CSO: 5000/178



# ANGRY CITY RESIDENTS CONDEMN WATER LIMIT

Durban THE DAILY NEWS in English 22 Apr 83 p 1

[Excerpts] Angry Durban flat and duplex dwellers today hit out at the "grossly unfair and confusing" allocation to them of only 200 litres of water a day per flat--half as much as that allowed for houses.

And supervisors of blocks of flats which buy bulk supplies and then sell to individual apartments, said they had no way of monitoring consumption and catching anyone who was using more than his allocation.

The situation was made even more unfair, people said, because old folks and families with babies would be allowed only as much as, for example, bachelors living alone.

Typical of upset flat-dwellers was Mrs Troon Dardagan, of Berea, who felt the rationing announced yesterday was unfair as her family of five living in a three-bedroom duplex flat would find it difficult to be restricted to 40 litres each for all their needs.

"I feel it would have been fairer all round if water was rationed on a per capita basis.

"A single person in a flat will be allowed the same amount of water as my family--which includes a baby still in nappies and two under six. It just does not make sense.

"I know one will be able to apply for more water but it appears it will be a long and wasteful process, especially as there will probably be thousands of applications," she said.

## Tariffs

The chairman of Natal's Emergency Water Committee, Mr Ray Haslam, said that the extra tariffs for exceeding the water allocation in flats would be charged to owners. This meant that in large blocks of flats controlled by only one meter, the owners of the block would initially be charged.

"Obviously this charge would then be passed on to the tenants," Mr Haslam said.

He agreed that individual water wasters in such blocks would be hard to pinpoint.

"That is why I call on people to co-operate with one another and ensure that the block does not go over the limit.

"I am confident that there are very few secrets in a block of flats," Mr Haslam said.

Asked why rationing had not been applied on a per capita basis, Mr Haslam replied that it would have taken eight to 10 weeks to implement such a procedure.

"We just cannot afford that length of time in this crisis situation."

He added that at this stage he was not sure whether simplexes and duplexes could be categorised as houses or flats. This had not been finally decided yet.

CSO: 5000/178

COLUMNIST ON 'TRAUMATIC EXPERIENCE' OF DROUGHT VICTIMS

Johannesburg THE STAR in English 25 Apr 83 p 10

[Article by Steyn Terblanche]

[Text] The severity of a drought and its resultant influence on a country's agricultural, economic, social and even constitutional systems is determined by three factors: how many years it lasts, how far it extends and its intensity.

Measured against these three norms, it appears that the present drought is the "big daddy" of them all.

Rainfall reports show the drought began as early as 1978 when drought aid was first given to farmers in the north-west.

Not only is more than 70 percent of the country caught in the drought, which extends from the North-western Cape to the Northern Transvaal, through the whole of the Free State, Natal and Eastern Cape, but it seems that the drought now encompasses the entire southern hemisphere.

The intensity of the drought is horrifying. In the north there are children of five years old who have never seen rain. In large areas of the country the rainfall has been as low as 10-25 percent of the normal rainfall.

The level of the dams in the Highveld area at the end of the rainfall season were 40 percent and at times as low as 2 percent. The previous lowest inflow into the Vaaldam catchment area was 1934 when it was 450 000 million cubic metres. This year it amounts to only 180 000 million cubic metres.

From these facts it is apparent that the claim that we are suffering the kind of drought which occurs once in 200 years is not so far-fetched. It is easy to understand why the Government sees the drought in such a serious light, and why it has announced such far-reaching help and emergency measures.

The consequences of the drought were already catastrophic for the agricultural sector because there was maize crop failure in 1982 and this year the crop is expected to be only 43 percent of the normal one.

This means only about 50 percent of production costs will be covered, leaving maize farmers with a producers' debt of R800 million and that next year the interest on producers' debt will run to R22 a hectare or eight percent of production costs.

The farmers in the north-west spend just as much per year to maintain their stock as that stock is worth.

Our beef stock will have been depleted by a million by the end of the drought. While farmers are getting up to 50 percent lower prices for their stock, the middle man is being less affected by price decrease.

Without a sympathetic government and the strong financial infrastructure of the co-ops, the situation in the agricultural sector would have been absurd and chaotic, with a total depopulation of the platteland.

The people having the most traumatic experience are the rural blacks and especially some, such as those in kwaZulu and the Eastern Cape, where the drought has reached maximum intensity and where cattle are dying and there is no grass, water or even firewood.

These people are also entitled to our special sympathy and generosity.

CSO: 5000/178

## DROUGHT LEAVES HOMELANDS ON 'BRINK OF DISASTER'

Johannesburg SUNDAY TIMES in English 1 May 83 p 8

[Text] MILLIONS of rands are being spent on drought aid in South Africa and the homelands, but more money is desperately needed.

Welfare and government agencies are hard-pressed to steer the region from the brink of disaster, but still thousands of rural blacks go to bed hungry.

World Vision, which has a base in South Africa, operates 176 projects directly linked with the drought in this country.

Over 200 000 children are given some form of sustenance each day. For most this is a slice of brown bread and a cup of soup.

"We try to offer protein-enriched supplementary meals. Children cannot exist totally on what we give them. These meals are merely a back-up," support director David Cuthbert has said in Johannesburg.

### Hardship

He explains that although malnutrition and even starvation are not new in his territory the drought has stretched aid potential to the limit.

"Our aim is to feed the children, save them from starvation. We also work to prevent the same situation in the future. We attempt to educate and also launch schemes to preserve water."

Only a third of World Vision's funding for local projects comes from South Africa. The rest is from overseas.

Mr Cuthbert says most of his agency's drought activity centred on the homelands where the greatest hardship is felt.

The menu of soup and a piece of bread costs only 10c but the mechanics of getting the food to the needy are a major headache.

Mr Cuthbert blames the drought and the economic downturn on the tragic increase in malnutrition.

"The menfolk have no work in the cities. The cattle are dying or have to be slaughtered before the time is right.

### Despaired

"The cattle cannot be turned into cash. The crops have been burnt and many have despaired and not planted."

Operation Hunger is the feeding scheme run by the Institute of Race Relations.

Transvaal regional secretary for Operation Hunger, Ina Perlman, describes the situation as "the worst in memory."

Worst hit of the homelands are Lebowa, Venda and Gazankulu. Figures show that up to 1.5-million people need some form of relief in the new states and in this country.

In Gazankulu some 300 000 are hungry and many are suffering from acute malnutrition.

In Lebowa there are upwards of 400 000 while Kwa-Zulu, the Ciskei and Transkei report equally serious hunger situations.

The Lebowa Secretary of Health, Dr Machupe Mphahlele, has stated hundreds of thousands of his countrymen need food aid to survive the winter.

A further threat to lives is the approaching winter. Mrs Perlman said children who

are hungry or suffering from kwashiorkor and other malnourished conditions need to stay warm.

"They are weak and cannot stand the cold. You see them in circles around the fires. It

seems nothing will keep them warm. This makes their condition deteriorate," she said.

In KwaZulu Operation Hunger's has doubled its school feeding programme to 60 000 children.

CSO: 5000/178

## DROUGHT AGGRAVATES KWASHIORKOR; MORE CHILDREN DIE

Johannesburg SUNDAY TIMES in English 1 May 83 p 8

[Article by Blaise Hopkinson]

[Text]

**T**HE children of drought are dying.

Hunger, disease and tragedy are more familiar to them than a bowl of food. And the parched veld is a constant reminder that worse is to come.

As winter approaches more children will die from malnutrition and starvation.

Some will have proper burials in graveyards, for others a mound of dry sand and a makeshift cross will be all.

The disease of the weaned child, kwashiorkor, has claimed 50 percent more children than last year. The sick and dying lie four abreast in iron cots at rural missions.

Other killers like gastroenteritis, pneumonia and even tuberculosis claim the weak.

Not 30 minutes down a dirt track from the thriving Northern Transvaal town of Pietersburg, 16 black children are gasping for a chance to live.

The children, inmates at the Subiaco Clinic run by nuns near the University of the North, rest in cots and choke on their rations of powdered milk and play on mats.

To the south 70 children like them cram the malnutrition ward at the Jane Furse Hospital, where nine young foreign doctors battle to keep them alive.

**T**he ward, an L-shaped room, has a stench of mealie-meal, sweat and sickness. Mothers crowd around to tend their children.

Swollen little bellies poke against the cot bars. One child sits forlorn on a chair. There is a gaping sore on a once pudgy cheek.

In the corner a child, barely three months old, lies feebly. Its legs as thick as a farmer's fingers, joints knob-bly and swollen from disease.

The doctors fear the child has TB and malnutrition has halved its chance to live.

Dr Philip Stevens, a young English doctor at Jane Furse, said last month over 30 children from surrounding Lebowa were admitted suffering from kwashiorkor.

"That is 50 percent up on the month before. The drought is making things much worse.

"There has always been a high incidence of this disease in these parts but we see more coming in every day," he said.

Of those 30 maybe five or even 10 will not go home. Dr Stevens said many are admitted when there is almost no hope for them. Deaths, he says, are up by half.

He said that hospitals like Jane Furse only see a fraction of kwashiorkor cases.

The rest die in the outlying areas, because the admission fee of R4 is too expensive for parents of dying children.

"We also have problems with children who have been taken to witchdoctors. They come to us when there is nothing more that can be done.

"Other parents simply don't bring their children because they haven't got the money," he said.

The symptoms of kwashiorkor are ghastly. The skin peels, the black, curly hair becomes reddish and straight before falling out. The limbs and abdomen swell.

"This disease causes a complete breakdown of the system. Children, usually over the age of one, lose their resistance to infection and cannot recover from the most minor problem," Dr Stevens said.

**A**t Subiaco, Sister Francesca, a buxom, smiling woman, said: "We do all we can. The rest is in the hands of the Lord.

"The children are hungry because the fields are dry. April and May is the time when people should have plenty to eat. This year there is nothing."

Last Sunday two children died in her ward. They made room for two more.

"I cannot keep all of them. There is no space. I have to send them home when they get a little better."

It is a 24-hour job to keep the small flock alive. They need feeding every couple of hours. Their stomachs can't take more than the smallest amounts of food.

At 10 in morning the children sit in a ring and recite the prayer: "We thank you, Lord, for the food you give us." They then feebly clap their tiny hands and drink their milk.

One little child, aged three-and-a-half but looking like a new-born, spilled most of it then threw up what she managed to drink from the cup in her claw-like hands.

The sunlight streaming through the clinic windows made her look transparent.

"They come in and some of them you know will die. But in your heart you try, you think maybe they will survive.

"A child could be half dead. It may take a year to make them better. You must try," said Sister Francesca.

At Jane Furse, Dr Stevens said mothers who live at the hospital while their children are interned are given lectures on how to fight malnutrition.

"One child came back after a month, sicker than before. I asked the mother if she had listened to the lecture.

"She told me she had but couldn't afford to feed her child. Her crops had failed and she had no money," he said.

Dr Stevens said as winter closes in, he and his colleagues will have to contend with a vast increase in the number of cases.

**E**ven the simplest cough can, if the child is ill-fed, develop into a fatal illness.

The situation is worse in the outlying districts of the homelands.

Hundreds of thousands of children need food, not just porridge but a full diet. They won't get it until the rains come.

Before then many will be dead.



DROUGHT AFFECTING ABILITY OF CHILDREN TO STUDY

Johannesburg SUNDAY TIMES in English 1 May 83 p 8

[Article by Blaise Hopkinson]

[Text] The child sits listlessly at his kindergarten desk. Before nine his little head is hanging. He is faint and cannot concentrate.

"The children come to school and they have had no food. We give them soup and milk but sometimes it is not enough," said Sister Cecilia, principal of St Benedict's Pre-School at Tholongwe in Lebowa.

Some of the children walk 20km to get to their school.

Since the drought took hold Sister Cecilia and her colleagues have been faced with even greater problems teaching the youngsters.

### Fainted

She said: "They have had nothing before they come to school. They cannot do their work and often we have to take them outside for fresh air because they have fainted from hunger."

She fears that as the months of the drought pass more children will fall behind in their learning and become impossible to educate.

"If their stomachs are not full they cannot listen to us.

"Even last year it was not so bad. Now we must help them," she said.

When you walk into the classroom you see upturned faces: they peer at you as you walk among them.

Some children reach out and clutch your hand.

Others stare vacantly. They say their prayers... for food... for rain... and tuck into their mug of milk.

The visitor is forgotten until the milk is gone.

"We are doing the best we can," said Sister Cecilia.

But she fears the children — and others like them — are becoming a backward generation.

### Pray

They cannot learn and are more intent on filling their bellies than grasping the three Rs.

Sister Cecilia said: "You can tell. When a child looks dizzy in your class you know that he has not had anything before coming to school, not even a glass of water.

"They cannot follow their lessons."

It is the worst year the good sisters have seen but still they make do.

They are patient with the slow learners.

"When we see children are not well we take them to the clinic or give them something to eat. For some of them the only time they eat is when they are here.

"They go home at two and must wait until the next day for more food. Maybe they will have some mealie-meal, that is all."

In the schoolyard you can pick out the ones who are suffering. They do not run and shout like the others. They sit quietly in the shade.

"Something must happen. We pray to God," Sister Cecilia said.

# PRISONS MAY CLOSE DUE TO 'CRIPPLING' DROUGHT

Johannesburg RAND DAILY MAIL in English 28 Apr 83 p 1

[Text]

## HOUSE OF ASSEMBLY.

— Some South African prisons may have to be evacuated as a result of the crippling drought.

The Minister of Justice, Mr Kobie Coetsee, told Parliament during the debate on his department's budget that certain prison farms which supplied rations to prisons were seriously threatened by the drought.

"In places the drought has been so severe that the Prison Services have had to make considerable additional provision for prison rations because the diminished production on our farms," he said.

He said if it was found necessary to evacuate any prisons, it naturally meant that the overcrowding in other prisons would increase.

Mr Coetsee said earlier he regretted having to inform Parliament that by March 31 the prison population had grown to 105 634 — higher than the figure immediately before the amnesty granted last May.

This was ascribed to an increase in petty crime which could in turn be attributed to the economic situation and unemployment.

Mr Coetsee said the Prisons Department had already planned to make provision for increased prison populations in Westville, Johannesburg and Maritzburg.

"We are planning to accommodate an average 50% overpopulation," he said.

Meanwhile, hotel groups have also been hit by the water prices and intend cutting back consumption themselves and making guests aware of the situation.

Southern Sun and Holiday Inns have each decided on ways of reducing their water consumption.

Director of operations for Holiday Inns, Mr H Enderle, said yesterday that guests would soon find a notice in every bathroom reading: "Shower with a friend — it's fun and saves water".

He said hotel managers had been instructed to put one or two bricks in the cisterns of toilets to reduce the volume of water.

The head of Southern Sun operations Mr B Corte said his group had reactivated several boreholes, and the group's Durban hotels would use borehole water to fill swimming pools and for air-conditioning units.

"The water shortage hasn't affected us yet but if it becomes more critical we will ask our guests to co-operate in saving water."

In Johannesburg, a spokesman for the West Rand Administration Board said Wrab was not aware a 10cm waterpipe had been leaking in the veld in Soweto for about four months.

Mr Sarel Pretorius, a foreman on a nearby construction site, said the pipe began leaking in December last year. He said he telephoned Wrab officials several times about the leak. It was finally fixed on Tuesday this week.

NATAL-FREE STATE CLOUD-SEEDING OPERATION DESCRIBED

Durban THE DAILY NEWS in English 22 Apr 83 p 6

[Article by Terry McElligott]

[Text]

ACROSS the Natal-Free State border they're up to some very strange tricks.

They fly around in little aircraft among the clouds and drop something into them. And a bit later it starts to rain.

You don't believe it? It's called cloud-seeding, or weather modification, a practice once branded as a "sin" by Free State domineers.

Unfortunately, Daily News readers who have excitedly suggested that "seeding" is the answer to South Africa's worst drought of the century are mistaken.

The project — at Bethlehem, OFS — is still very much in the experimental stage, even though the idea has been tried spasmodically and with varying degrees of success in the country for 20 years or more.

Heading the Bethlehem project is Pretoria-based Mr Piet du Toit, director of meteorological research in the Department of Transport, who's keeping a very low profile at this stage.

Yes, clouds are being seeded at certain times of the year — about 25 to 30 over a period of months. Yes, about 20 of them produce rain.

"But," says Mr du Toit, "the clouds might have produced rain anyway, through the processes of nature. The seeding might not have caused it."

Piet likes to spoil a good story, to knock your theories about how to end the drought forthwith.

His staff at Bethlehem stands radar watch for promising-looking clouds and keeps track of them as long as they can. There are dozens of things to record, some of them by aircraft — the type of cloud, height, size, temperatures, etc.

The seeding side is very limited and purely experimental.

The seeding material put into clouds to make rain is either dry ice in the form of pellets or silver iodide.

"We hope that within the next two to three years we will know whether, in theory, rain can be increased by cloud-seeding in the Free State and how this may be done," says Mr du Toit. "Then the theory would have to be tested over about five years to see if it is based on fact or is just a pipe-dream."

And what is effective in the Free State may be useless in Natal since our clouds are very different to theirs.

It is necessary to tread very carefully in seeding, as in other dabbling with nature.

In the past, people have claimed that indiscriminate seeding has reduced the rainfall.

It has been blamed for causing both droughts and deluges.

How effective is cloud-seeding? There have been some glowing reports from various parts of the globe, but most of these have not stood up to close scrutiny.

Perhaps the tallest story was that told by a Free State farmer during a fierce drought 11 years ago. He refused to have anything to do with "milking clouds" — by firing rockets into them — because of an incident in the South African War.

He said some British troops fired cannons into the clouds and many people and animals died during the storm that followed.

Heavy rains in 1973 were attributed by one South African "expert" to the French atom bomb tests. Who knows? He might have been right.

And, of course, the start of the cricket season in Durban used to be an infallible method of bringing on the spring rains.

For years cloud-seeding took place in the Nelspruit district of the Eastern Transvaal with the aim of suppressing hailstorms, which cause havoc to crops. But farmers were dissatisfied with the results and withdrew their financial support for this commercial project.

Efforts in Natal to increase rainfall in the 1960s came under fire, old-timers claiming that artificial interference with cloud build-up was having an adverse effect on rain.

And if rain is attracted to the Free State, won't this deprive farmers "downwind" in Natal of possible rainfall? Mr du Toit says this is unlikely. Those downwind may, according to some claims, get more rain.

He doesn't see seeding as a possible total solution to the country's rainfall problems.

"Since the energy involved in one thunderstorm is greater than that of an atom bomb, then we can only hope to effect changes on a small scale."

However, he is encouraged by the success achieved by the Israelis, who have increased their rainfall by 15 per cent through seeding.

One Daily News reader has suggested that South Africa should use "iceberg importation" to solve its immediate water crisis. The iceberg is towed by ship from the Antarctic.

A Weather Office spokesman says, however, that this would not be economically or practically feasible. He sees the desalination of sea water as a more likely answer.

OZONE NEW POLLUTANT WITH 'KILLER' ABILITY

Johannesburg THE STAR in English 28 Apr 83 p 12

[Article by J Manuel Correia]

[Text] South Africa is facing a new and potential killer pollution threat-- ozone.

Particularly at risk are Cape Town, Durban and Pretoria.

Medical sources told The Star that over-exposure to ozone is noxious to lung tissue.

Among other things it causes pulmonary oedema and emphysema, resulting in death. There appears to be no antidote.

The sources emphasised, however, that the concentration of ozone would have to be high and over a prolonged period of time.

High concentration of ozone is also found where arcing occurred, such as in arc welding and switchgear material.

The authorities are taking a serious view of the matter and are constantly monitoring the ozone level.

What makes the matter more serious is that increasing use of alcohol-petrol fuel mixtures will aggravate the problem.

A long-standing programme of monitoring primary and secondary pollutants from motor vehicles conducted by the National Physical Research Laboratory (NPRL) of the Council for Scientific and Industrial Research (CSIR) has recently been extended to ensure that the country's cities are not harmfully affected by such pollutants and to avoid unnecessary costs in combating pollution.

The Department of Health is supporting the programme financially,

according to Scientiae, organ of the CSIR.

Pollutants from motor vehicles can be divided into primary pollutants derived directly from the vehicle and secondary pollutants occurring as a result of the reaction of primary pollutants with air in the presence of sunlight.

The NPRL has monitored these pollutants periodically over the past decade in Pretoria, Johannesburg and Durban.

Four primary pollutants, lead, oxides of nitrogen, carbon monoxide and total hydrocarbons -- plus a secondary pollutant, ozone -- have been determined.

Carbon monoxide and hydrocarbon have decreased over the years while lead has remained more or less constant. Oxides of nitrogen and ozone have increased.

The ozone increase can be attributed to the increase of oxides of nitrogen, says the magazine.

"The decrease in carbon monoxide and hydrocarbons and the increase in oxides of nitrogen are a direct result of the development of more efficient vehicle engines.

"In Pretoria and Cape Town the oxides of nitrogen values are some-

times higher than the standards set for good quality environmental air.

"In respect of ozone the value is sometimes exceeded in Cape Town and in Durban it nearly reaches the limit.

CSO: 5000/178

# USE OF OIL TANKERS FOR WATER SHIPPING CONSIDERED

Johannesburg RAND DAILY MAIL in English 27 Apr 83 p 5

[Text]

**MARITZBURG.** — The possibility of using oil tankers to ship fresh water to Durban if the drought worsened was among the measures being investigated by the Umgeni Water Board, the chairman Mr Roger Phelines revealed yesterday.

He said each tanker employed would provide less than 2% of the city's unrestricted daily consumption.

While the cost of tankers would be of the same order as desalination of sea water — around 20 times that of purifying normal surface water — desalination plants took time to build and there was an over-supply of new oil tankers waiting for commissions to be put into service.

He did not say which ports were being considered as potential sources for water.

Responding to criticism that the water board should have done more to provide for times of drought, Mr Phelines said that to have provided for this summer's extraordinary drought, water tariffs would have had to be doubled.

"It must also be remem-

bered that our natural water resources are finite, and that the time will soon come when the yield of a river cannot be increased no matter how many additional dams are constructed."

Once this stage had been reached, the recycling and desalination of water would have to be resorted to.

Meanwhile in Simonstown, water resources are now down to 16% and deteriorating rapidly.

● No national day of prayer for rain is at present being contemplated, a spokesman for the Prime Minister's Office said yesterday.

Figures last week showed the content of South Africa's dams have dropped drastically since the beginning of January. Current levels are (with the January level in brackets): Natal 13% (15), Eastern Cape 29% (46), Eastern Transvaal 38% (43), Vaal River area 35% (46).

The worst hit dams are the Bluemoss Dam with 7% (30% in January), Hartbeespoort Dam 34% (48), Vaal Dam 33% (44) and in Natal the Albert Falls Dam 9% (11) and Midmar Dam 26% (46).

CSO: 5000/178

## SOUTH AFRICA

### BRIEFS

CLOUD-SEEDING STUDIED--South Africa is taking a close look at the methods used by Israelis in achieving a 15 percent increase in rainfall over target areas. This figure, carefully checked by meteorologists and statisticians around the world, has been maintained since 1961, making Israel the most successful country to increase the annual level of precipitation. It has achieved this success where many other countries, some with much greater resources, have failed. [Excerpt] [Durban THE DAILY NEWS in English 22 Apr 83 p 6]

SIMON'S TOWN WATER CRISIS--A water crisis in Simon's Town--where resources are now down to 16 percent--will be alleviated if the proposed link-up with Cape Town's water supply comes into operation next week. Colleen Hedderwick, of Fish Hoek, writes that construction on the link-up has been hampered along the Simon's Town road section but is now expected to be completed by the end of the week. A senior spokesman for the City Engineer's Department said the dams supplying Cape Town with water were lower than last year but gave the assurance that Cape Town had no water problems. The present state of the main dams supplying water to Cape Town are as follows (the figures in brackets are for the same period last year): Wemmershoek: 35,9 percent full (44,6); Steenbras lower: 36,1 (33,6); Steenbras upper: 73,3 (91,4); Voelvlei: 69,2 (74,1); Theewaterskloof: 16,9 (11,00). [Text] [Cape Town THE CAPE TIMES in English 28 Apr 83 p 3]

WORSE DROUGHT FEARS--The Association of Chambers of Commerce is to meet the Minister of Environmental Affairs and Fisheries, Mr Sarel Hayward, this week to discuss the serious impact of the drought on commerce and industry, the chief executive of Assocom, Mr Raymond Parsons, said at the weekend. The drought was adding to the problems of the recession and fuelling the rate of inflation, said Mr Parsons at Assocom's Transvaal regional congress in Rustenburg. Water authorities should be in close contact with the various chambers of commerce to ensure that the measures introduced were effective. "Some of the measures have been implemented in great haste and the regulations have been poorly communicated to consumers," he said. Congress delegates unanimously accepted a motion which urged chambers to liaise closely with local authorities. Water restrictions could lead to loss of business and an increase in unemployment, said Mr D Mackintosh, a member of the Springs Chamber of Commerce. "When the water boards introduce their water quota, it is essential the quotas are fixed at equitable levels," he said. Delegates



from country areas described the grim impact of the drought on agriculture. Mr A Keller, Assocom past-president and a member of the Letaba chamber, said the full effects of the drought would not be felt until 1984. "This year's citrus crop has not been affected because there was adequate water at the start of the season. Next year we could lose a million orange trees." In the Nelspruit area, the entire cane crop would have to be re-planted next year, said Mr B Shrosbee from the Nelspruit Chamber of Commerce. "The Malelane sugar mill has already had to close because of the water problem." A Benoni delegate, Mr J M Tilley, said businessmen should explore every avenue to conserve water and to find alternative sources. Industry should investigate the possibility of tapping the vast quantity of water stored in old Reef mines. [Johannesburg THE STAR in English 25 Apr 83 p 4]

**RAIN HELPS SUGAR CANE**--Widespread but localised rains have benefited parts of the Eastern Transvaal, Natal and the Eastern Cape. On Saturday Queenstown received 10 mm, Umtata 9 mm, Durban as much as 56 mm, Ladysmith 12 mm, Estcourt 5 mm and Piet Retief 19 mm. Yesterday more rain fell in the southern Lowveld, where Nelspruit received 19 mm, and in the Western Transvaal, where Koster received 21 mm and Derby 19 mm. According to the Weather Bureau, this weekend's rain was associated with a wintry cold front moving as far north as the Northern Free State. A spokesman for the Cane Growers' Association in Durban said the southern parts of the Natal sugar belt would benefit greatly by the rain as well as the cane fields of Pongola. Some parts of the parched bushveld have had rain. Potgietersrus received 19 mm and the Marnitz oasis 16 mm. On the Transvaal Highveld, Standerton received 11 mm but farmers say this was too little and too late. Tshwelopele in Lebowa received 22 mm. Other rainfall figures released by the Weather Bureau are: Bethal 6 mm, Ellisras 6 mm, Goedspruit 20 mm, Rustenburg 6 mm, Krugersdorp 6 mm, Lydenburg 6 mm, Germiston 10 mm and Port Shepstone 14 mm. [Text] [Johannesburg THE STAR in English 25 Apr 83 p 1]

**NEW WATER SYSTEM**--A R60-million canal and pipeline system covering 30 km to improve the efficiency of water supply to the area controlled by the Rand Water Board was officially opened yesterday by the Minister of Environment Affairs and fisheries, Mr S A S Hayward. The system provided the connection between the Vaal Dam and the Zuikerbosch Pumping Station. It comprises a concrete-lined canal with a top width of 13 metres and a depth of 4 m, a length of 20 km and a capacity of 2 000 megalitres a day, together with a pipeline of 8,5 km in length with a diameter of 3,5 m. In addition to the pipeline and canal, a coffer dam, tunnels, an outlet tower, variable level draw-off control gates, emergency gates, canal siphons, farm road bridges and an infrastructure to accept water at the pumping station have been created. Construction of the outlet works began in late 1979 and the installation of the pipeline and construction of the canal in its terminal reservoir began during the second quarter of 1980. It is expected that all work on the project will be completed towards the end of the year. [Text] [Johannesburg THE CITIZEN in English 6 May 83 p 13]

**NATAL DROUGHT**--Durban--The critical drought situation is now affecting reserves and game parks under the jurisdiction of the Natal Parks Board.

All accommodation areas belonging to the Board in the Mkuze area are in danger of being closed. They are open temporarily at the moment because of underground water sources. Camp sites at False Bay and Fanie's Island in Zululand had been closed because of the lack of water. Because of the severe drought, the Board may also have to reconsider its game culling and recapture programme. At present the Board culls about 8 000 animals annually from 218 species. It also captures about 3 500 animals yearly which are moved to other game parks in South Africa and Homelands. Most of these programmes may have to be stepped up soon. [Text] [Johannesburg THE CITIZEN in English 4 May 83 p 14]

PLATTELAND TRADERS' CRISIS--Platteland shopkeepers say they are facing their worst economic crisis in memory. The spending power of farmers had plummeted by more than 50 percent as a result of the crippling drought. "It's a desperate situation," said Mr Bill Lacey, economist for the Association of Chambers of Commerce (Assocom), this week. Assocom took an in-depth look at the situation during a regional congress in Rustenburg. Rural businessmen spoke of dustbowl conditions in their areas resulting in empty cash tills. Luxury goods such as television sets, furniture, radios and even clothing are no longer being bought. Other goods off shopping lists this year include farm implements, tractors, trucks, cars and fertiliser. There has also been a ripple effect in areas such as legal offices, accountancy firms and other business houses in which staff has been retrenched. On the Free State gold-fields trade has also been affected. Expatriate mineworkers are sending home more money than before to help their wives and children survive in drought-hit countries such as Lesotho, Mozambique and Botswana. Last month the turnover figure was said to have fallen "between 30 and 50 percent." Mr Lacey said that Assocom "had no reason" to change an earlier assessment which said that farmers' debts to co-operatives would this year double the 1982 figure. Last year, the debt amounted to R369-million, and the estimate for 1983 is more than R700-million. [Text] [Johannesburg SUNDAY TIMES in English 1 May 83 p 8]

DROUGHT AID REQUESTS--Applications for regions to be declared emergency grazing areas were being received at an alarming rate, according to the chairman of the Department of Agriculture's drought aid scheme. Mr Harry Hattingh told the SABC applications were being received every day. The real extent of the current drought and what it was going to cost the Government, would only be realised later on, he said. One of the reasons for this was that farmers who had planted summer crops would only know their requirements by August, when they would apply for the consolidation of debts under the Government's drought aid scheme.--Sapa. [Text] [Johannesburg THE CITIZEN in English 22 Apr 83 p 5]

CSO: 5000/158

## BRIEFS

**WATER CURBS HIT HARARE**--It will be an offence from May 1 for Harare residents to use hoses or sprinklers to water lawns, gardens or for washing cars or yards, the city council decided. The City's water supplies can last only about another 15 months at the present average daily consumption of 279 million litres, according to Director of Works, Mr Tongai Mahachi. Both Lake Mcilwaine, only 70.1 percent full last Sunday, and the Henry Hallam Dam, which has 12.2 percent full and at their lowest levels since they were built.--Sapa. [Text] [Johannesburg THE CITIZEN in English 23 Apr 83 p 8]

**SABI RIVER SILTING**--Mutare. Silting of the Sabi River is worsening and spreading throughout the whole catchment area, says the Natural Resources board regional secretary for Manicaland, Mr Oliver Chapeyama. He told Ziana on Tuesday that the whole of Manicaland was criss-crossed by the Sabi River system and silt was brought from various districts where bad farming methods, overstocking, streambank cultivation and soil erosion were rampant. The NRB had sent out conservation officers to the various districts to tell people about conservation measures. Committees had been set up throughout the province to boost natural resources conservation awareness among the local people. On tree conservation, Mr Chapeyama said the people of Manicaland were now refraining from cutting down trees. But, he added, there was a shortage of firewood in the communal lands caused by urban dwellers who went into the areas to cut down timber for sale in towns. [Text] [Harare THE HERALD in English 14 Apr 83 p 4]

**TRANSPORT HAMPERS RELIEF DISTRIBUTION**--Harare.--The Zimbabwe government will spend Z\$111,9-million (R125,7 million) to carry out its drought relief programme, the chairman of the drought relief committee, Mr Kumbirai Kangai, said in an interview published in Harare. Mr Kangai, who is Minister of Labour and Social Services, said that rural areas in Manicaland, Masvingo and Matebeleland were the worst affected. "We have done the costing of every item and activity which needs to be carried out to combat the drought situation in these areas and other parts" he said. He appealed to businessmen in Zimbabwe and donor agencies to help the government with whatever they could offer, to "prevent unnecessary loss of life and livestock." His committee was hampered by the shortage of transport to distribute relief food, he said.--Sapa. [Text] [Johannesburg THE CITIZEN in English 22 Apr 83 p 5]

CSO: 5000/159

## BRIEFS

CEMA COLLABORATION ON ENVIRONMENT--The main directions in CEMA member cooperation in the area of environmental protection for 1986-1990 and the issue of extending the effective period for the corresponding CEMA agreement were considered at the regular CEMA Council meeting on environmental protection, held in Neubrandenburg (GDR). Participants were delegations from CEMA member countries and Yugoslavia. As noted in the meeting's minutes, CEMA members will continue to direct their efforts at solving tasks of efficient use and protection of natural resources, introducing less waste-producing processes in industry, and reusing industrial waste in the economy to improve working and living conditions. the joint council plan for 1983-1984 was also approved. Some 400 scientific research organizations of CEMA member countries, whose work is coordinated by the council, are currently involved with realizing environmental protection-related tasks and projects. /Text/ /Moscow EKONOMICHESKAYA GAZETA in Russian No 16, Apr 83 p 20/ 9875

EARLY APRIL TAJIK EARTHQUAKE--There was an earthquake today at 2:19 Moscow time in Tajikistan. Its epicenter was 150 kilometers north of Khoroga, the administrative center of the Gorno-Badakhshan Autonomous Oblast. According to the "Dushanbe" seismic station, the force of the underground shocks in the epicenter reached 6 points. At Khoroga and Vanche were recorded shocks of 4-5 points; in Kulyabe, Dushanbe and Garme, 2-3 points. There were no injuries or damage. /"Voice of the Underground Elements"/ /Text/ /Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 8 Apr 83 p 4/ 9875

TAJIK AIR POLLUTION CONTROL--A State Inspection for Atmospheric Air Control has been created in Tajikistan, whose function is to coordinate the work of all organizations involved in monitoring and protecting the environment. The inspection's employees have extensive authority: they are empowered to shut down industrial enterprises polluting the air with contaminants. As with the health service, the new organization's main task will be a preventive operation, to ensure that the republic's inhabitants can breathe clean air. /I. Sangova, "The Air is Being Protected"/ /Text/ /Dushanbe KOMMUNIST TADZHIKISTANA in Russian 4 Feb 83 p 4/ 9875

ARMENIAN LANDSLIDES--Over 2,200 slides of various types, scale and activity have been recorded in Armenia's mountains. Occupying around 60,000 hectares, they are significantly hampering development of new land and inflict noticeable damage to transport arteries, communication lines, and some buildings. An

equal danger is presented by heavy flooding, especially in winters with much snow such as this year's, and by strong mud slides. Much is being done in the republic to provide a reliable protection from storms. But isolated measures have little effect, so the staff of the "Armgirozem" scientific research institute has worked out a general program to protect rural populated areas, enterprises, buildings, structures and farmlands of Armenia from slides, cave-ins, avalanches and mud slides. The measures will be implemented in three stages. Various specialists participated in working out the scheme: geologists, geomorphologists, land managers, hydraulic engineers, and economists. /N. Ordinyan, "Protection from Slides"/ /Text/ /Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 29 Mar 83 p 4/ 9875

INDUSTRIAL AIR POLLUTANTS--A sampler for monitoring emissions of industrial enterprises into the atmosphere, and developed by workers of the SKTB "Aerozol'", has successfully completed interdepartmental testing. It was built by a group of chemists in the atmospheric pollution research department, working to develop standardized techniques. The device will be introduced at the Yerevan TETs, where it will determine the actual amount of emissions of one of the most aggressive pollutants: sulfur dioxide. Recommendations on building cleaning facilities will be made based on the results obtained. /M. Yeremyants, "So That the Air Be Clean"/ /Text/ /Yerevan KOMMUNIST in Russian 20 Feb 83 p 1/ 9875

KUZBASS AIR IMPURITIES STUDIED--The RSFSR Council of Ministers has directed that a special design technological bureau for the industrial ecology of Siberia be created in Kemerovo on a cost-accounting basis, affiliated with the Kuzbass Polytechnical Institute of the RSFSR Ministry of Higher and Middle Special Education. This bureau's basic directions of scientific activity are: (1) develop and introduce a system for monitoring the condition of the air basin of industrial Kuzbass cities to prepare long-range measures to lower toxic substance concentrations; (2) do a thorough physico-chemical study of atmospheric aerosol pollutants in Kuzbass cities to detect sources of harmful pollution and develop measures to eliminate them; (3) improve technology in the leading areas of Kuzbass industry and recycle industrial waste; and (4) create processes and equipment to clean the air and water basis of harmful substances. / "For Nature's Health"/ /Text/ /Moscow SOVETSKAYA ROSSIYA in Russian 2 Mar 83 p 1/ 9875

CLEANING UP THE CASPIAN--Almost all industrial and household sewage from plants, factories and community services flowed into the Caspian a few years ago. Discharge of stratal water into the sea by oil and gas administrations has now been stopped, and about 20 water conservation facilities built. But the task of cleaning coastal waters cannot be considered solved by any means. The staff of our institute, Gipromorneftegaz of Mingazprom, has developed a project for a set of natural conservation measures. These include sealing the flooring of offshore foundations, collecting drilled rock and carrying it to coastal sludge banks, and general use of closed storage devices for bulk materials. In conjunction with the Azerbaijan engineering construction institute, an electrolytic method for neutralizing liquid household waste has been developed. A prototype of the "UOKhS-1" plant that utilizes this method is being readied. We are working in cooperation with design staffs of the Caspian and Black Sea

shipping companies, with whom our first priority is to develop shipboard collectors to eliminate accidental oil spills. / A. Suleymanov, deputy director of Gipromorneftegaz, three-time laureate of the USSR State Prize, "The Sea Will Get Cleaner" / Text / Moscow STROITEL'SKAYA GAZETA in Russian 11 Mar 83 p 1/ 9875

CSO: 5000/94

CHEMICAL FIRM PLANS WAYS TO CONVERT WASTE INTO NEW PRODUCTS

Oslo AFTENPOSTEN in Norwegian 29 Apr 83 p 29

[Article by Brit Myhrvold]

[Text] Elkem has invested between 40 and 50 million kroner on research and development for utilizing silica, actually a waste product in the production of ferrosilicum and silicon metal.

One of the areas in which investment has been the greatest is the use of silica as an admixture substance in concrete, and such concrete is being used, among other things, for the Karsto tunnel. Silica has been used as a substitute for cement in concrete, but now heavy investment is being made in the development of new products--an extremely light and very impervious and strong concrete.

Elkem has formed its own company, Elkrem Chemicals, with daughter companies in both the U.S. and Great Britain. The company is cooperating with the Danish cement producer Aalborg Portland and a company in the U.S.

There are also plans to set up businesses in Japan and Brazil. Elkem Chemicals in Norway is expecting sales of about 60 million kroner this year, and anticipates that its accounts will balance within a year. Up to now Elkem has spent more money than it took in, but silica is expected to have a big potential as an admixture substance in both concrete and plastic. It is also used in the production of fireproof material and it is added to chemical fertilizer.

Silica is a dust-like material which is obtained when the ovens which produce silicon alloys are cleaned. The particles are just as small as those in cigarette smoke, and silica has previously been a big waste problem for the silicon alloy industries.

The executive director of Elkem Chemicals, Terje Bogen, says that up to now Norway has been the largest market for silica, but that is in the process of changing. Exports are steadily increasing. Elkem also buys silica from other producers in Norway and abroad, in addition to its own production. Being the world's leading producer of ferro alloys Elkem will also be the leading producer of silica. Every ferro-silicon plant with cleaning apparatus is also a producer of silica. The production will vary with the production of metal, but Bogen believes that Elkem will be able to have such a large stock that stability can be maintained in deliveries.

Even if the time is gone when silica was waste, the disposal of which costs money, the prices are still considerably lower than those for the metals. The price of silica is somewhat over 800 kroner per ton, but the price of ferrosilicon, for example, at the moment is way over 3000 kroner.

Elkem has set up a concrete laboratory in Kristiansand and a plastics laboratory in Great Britain. The laboratory in Kristiansand will carry on basic research, develop new products utilizing silica, and handle customer service as well.

6893

CSO: 5000/2572



WASTE OF INCREASINGLY HAZARDOUS TYPES NOW HANDLED DOMESTICALLY

Oslo AFTENPOSTEN in Norwegian 28 Apr 83 p 30

[Article by Georg Parmann]

[Text] "Dentor Energi A/S and Norcems factory in Slemmestad are important today in handling dangerous chemical waste in Norway. When the Environmental Protection Agency had its waste plan ready in 1980, only 40 percent of chemical special waste from industry was disposed of in an acceptable manner. The rest just disappeared. Now about 60 percent of the waste is treated and the two above-named plants are responsible for the improvement which has taken place," Per Waage, deputy-director in the Environmental Protection Agency, informs AFTENPOSTEN.

Dentor Energi A/S received this year's environmental protection award from the Association of Industries, while Norcems concern in Slemmestad got the prize last year for its work on a chemical waste incinerator.

Norway has decided to rely upon existing industries to solve the problems connected with special industrial wastes and this line had met broad agreement. Waage says that the possibilities for handling the stuff today are good, even if the means of destroying certain kinds of waste are still lacking. For example, this is true for herbicides and PCB (a substance which is now prohibited in Norway), and it will take a lot of work to find a way to destroy that waste. In the meantime it is being stored.

A rough draft of the rules for handling special waste has been prepared. It has been out for comments, and the final work on the regulations will be finished this spring. Waage says that the goal is for the rules to go into effect in the latter half of 1983, the same time the new pollution laws goes into effect.

Along with the legal work there has been an effort to establish a good transport system and disposal points for dangerous waste. On a preliminary basis the establishment of special places for the disposal of dangerous waste has gone slowly. There is such a place in Gjovik, in Aurskog/Holand, and one will be built in Oslo. Initially, the goal is to establish 20 such places. Waage says that these places are primarily for the disposal of small quantities of dangerous waste which are not worth bringing to the treatment plants.

The possibility of burning chemical waste will disappear with the closing of the Slemmestad cement factory. Waage says they are now working on moving the burning to Norcems factory in Brevik, and it is hoped that the plant there will be in operation when Slemmestad closes down in 1985. In that case both Norcem and Dentor A/S will continue to play a key role in handling the dangerous chemical waste. Waage says that the Environmental Protection Agency is very satisfied with the job which Dentor Energi A/S has done in this area.

6893

CSO: 5000/2572

BALTIC, STRAITS THREATENED BY EUTROPHICATION

Stockholm DAGENS NYHETER in Swedish 16 Apr 83 p 37

[Article by Lasse Johansson: "Feeding of the Waters--a Creeping Environmental Danger"]

[Text] The eutrophication of our coastal areas may have unexpected consequences for the fishing industry. The ocean environment stands at the beginning of a problem that is almost as big and at least as difficult to handle as the acidification.

This is stated by the three researchers Ulf Ehlin, Ragnar Elmgren, and Rutger Rosenberg, who conducted the research investigation that is the basis for the decision by the Environmental Protection Agency to invest 5.4 million Swedish kronor into the first 2 years of studies of the Baltic and the West Sea.

Eutrophication happens when nutrients are added to the water--the most important ones are phosphorus and nitrogen--and the algae start growing. The water becomes a greenish, unappetizing soup, and when the blue-green algae are blooming in large masses, the water can become toxic to animals and humans.

The flowering of the algae leads to the deterioration of visibility, and a steady stream of organic material sinks to the bottom. When it is broken down, oxygen is used up, and the lack of oxygen can lead to great changes in animal life.

One has for a long time been aware of the over-feeding of our lakes, and this was the main reason for the intense development of local sewerage treatment plants.

Effective Treatment

The water treatment is very effective. Ninety-five to 98 percent of the phosphorus and of the biologically oxygen-using material are removed, but only 10 to 30 percent of the nitrogen. And this is one of the problems.

"It appears quite clear that it is primarily the nitrogen that is the most important nutrient for eutrophication in the Swedish waters," the researchers write in their report.

In spite of great investments in local treatment plants, more and more reports of eutrophication of coastal waters are brought in. The alarming reports from, among other places, the Laholm bay, show that the sequence of events can be very drastic. The catches of bottom fish have, among other things, dramatically diminished during the falls of 1980-1982, and the heavy flowering of the algae has decreased the bathing possibilities.

The problem is that we still know very little about the function of the coastal areas. Not all changes, such as the lack of oxygen in the deep areas of the Baltic, may be due to over-feeding. Neither is it certain that all changes due to eutrophication are negative; they may, for example, produce better fishing for a while.

Large ocean areas, the Baltic, and probably the Kattegatt, that today produce the larger part of Swedish catches, are, however, exposed to much greater over-feeding of nutritive salts than are unaffected waters.

This has now seriously started to worry the researchers and the Environmental Protection Agency. The threat to the environment is certainly less deadly than the worst environmental poisons, but, because nitrogen plays a large part and our waters are affected by what our neighboring countries do, the problem becomes difficult to handle.

The researchers have tried to determine where the nitrogen comes from. The information is unfortunately not definite, but it still indicates that the greatest amounts come from towns and farms via the waterways and from the burning of fossile fuel and the acidity of the air.

#### Two Ways to Act

The three researchers say that there are two ways to handle the problem of over-feeding. One way is to treat the symptom by aerating the lakes to prevent fish death, or by adding copper sulfate to prevent the blue-green algae from blooming.

The second way--and in the long run the most important one--is to reduce the discharge of nutrients.

One problem is, however, that there are no nitrogen treatment methods in Sweden. Those abroad work with the help of expensive processes that either speed up the biological break-down of nitrogen or expel gaseous ammonia into the atmosphere.

In Sweden, the easiest way to reduce the amount of nitrogen would be to change the farmers' use of fertilizers, say the researchers. This could be done without great investments and with an obvious social economic gain.

- (1) **Övergödningen — eutrofieringen** — av våra insjöar på grund av utsläpp av närsalter som fosfor och kväve är ett välkänt problem som bekämpas med kommunala reningsverk. Nu har man också upptäckt att kustvattnen utsätts för övergödning trots reningen. Naturvårdsverket drar snart i gång ett stort forskningsprojekt för att få en bättre bild av hotet som man misstänker är lika allvarligt som försurningen. Kartan ger en sammanfattning av det lilla man vet i dag.

(2)

**BOTTENVIKEN**

Man vet ännu alldeles för litet om hur ekosystemen i viken fungerar. Här finns vissa tecken på övergödning men området verkar inte lika känsligt för syrgasnedsättningar som egentliga Östersjön även om det har skett en sänkning av syrgashalten i de djupaste partierna.

(3)

**BOTTENHAVET**

Forskarna har funnit en antydning till ökning av biomassan och bottenfaunan jämfört med 1920-talet och man vill nu ta reda på om det är effekterna av en övergödning och om detta kanske rent av är positivt för fiskeproduktionen i de näringsfattiga vattnen.

(4)

**SKAGERACK**

Det finns ingen tendens till övergödning av det öppna havet men forskarna menar att de speciella förhållandena med skiktning av vattenlagren och små tidvattenvariationer kan förvärra effekterna av en ökad eutrofiering.

(5)

**BOHUSLÄNS FJORDAR**

Byfjorden är eutrofierad och även vattenområdena utanför. Flera av fjordarna runt Orust och Tjörn tycks även ha drabbats då syrgashalterna sjunker i bottenvattnet och siktdjupet minskar.

(6)

**KATTEGATT**

En tydlig eutrofiering har ägt rum i kustvattnen. Bland annat har stora delar av Laholmsbukten drabbats av kraftiga algbloomingar och låga syrgashalter. Även förändringar i ekosystemen som kan ha sin grund i övergödning har rapporterats.

(7)

**DANSKA VATTEN**

I Limfjorden har man registrerat förhöjda halter av näringsämnen, ökad primärproduktion, minskat fiske, och sänkta syrgashalter. I delar av de danska sunden har koncentrationen av kväve och fosfor ökat som en följd av eutrofieringen. I de öppna vattnen har man inte kunnat mäta någon förändring.

(8)

**ÖSTERSJÖN**

En ökning av närsalterna i öppna Östersjön visar att det skett en klar övergödning. Också biomasseökningar hos bottenfaunan kring Öland och Gotland är tecken på en begynnande eutrofiering, men forskarna är oeniga om det växande fisket och syrebristen i djupvattnen beror på övergödningen eller har andra orsaker.

0 100 200 km

[Key on following page]

Key:

1. The over-feeding--eutrophication--of our lakes, because of the discharge of nutrient salts, such as phosphorus and nitrogen, is a well-known problem being fought through local sewerage water treatment plants. It has now been discovered that even the coastal waters have been exposed to over-feeding, in spite of the water treatment. The Environmental Protection Agency will soon begin a large research project in order to get a better picture of this threat, which is suspected to be as serious as the acidification. This map gives a summary of what little is known today.

2. The Northern Part of the Gulf of Bothnia  
Too little is still known about how the echo systems work in the gulf. There are certain signs of over-feeding here, but the area does not seem as sensitive to oxygen reduction as the Baltic itself, even though there has been a reduction in oxygen content in the deeper parts.

3. The Southern Part of the Gulf of Bothnia  
The researchers have found hints of an increase in biomass and bottom fauna compared to the 1920's, and one now wants to know if these are the effects of over-feeding and if this could possibly be a positive development for the fish production in these nutrient-poor waters.

4. The Skagerak  
There are no signs of over-feeding in the open sea, but the researchers say that the special conditions of stratification of water layers and small tide variations may worsen the effects of increased eutrophication.

5. The Fjords of Bohuslan  
The By fjord is eutrophied, as are the areas outside it. Several of the fjords around Orust and Tjorn also seem affected, as the oxygen content decreases in the bottom water and the visibility is reduced.

6. The Kattegatt  
Obvious eutrophication has taken place in the coastal waters. Among other areas, large parts of Laholm bay have been affected by strong algae bloomings and low oxygen content. There have also been reports of changes in the echo systems that may be based on over-feeding.

7. Danish Waters  
Increased nutrient content, increased primary production, decreased fishing, and lowered oxygen content have been registered in the Lim fjord. In parts of the Danish straits, the concentration of phosphorus and nitrogen has increased as a consequence of eutrophication. One has not been able to measure any changes in the open waters.

8. The Baltic  
An increase in the nutrient salts in the open Baltic shows that there has been obvious over-feeding. Also, increases in the biomass of the bottom fauna around Oland and Gotland are signs of beginning eutrophication, but the researchers do not agree on whether the growing fishing and the lack of oxygen in the deep waters are due to over-feeding or have other reasons.

## Discharge Into the Depths

In countries close to the great oceans, the nitrogen problem is solved by mixing the pollutants. This is, however, no solution in our shallow and clear waters.

Another solution that the researchers see as a complement, is to move the discharge pipes down to great depths, so that the algae flowering, which occurs in the surface layers, does not benefit.

But we are still not knowledgeable enough to know how to attack the problems. The researchers, therefore, suggest a program which is, however, limited by the fact that there is a lack of qualified researchers in Sweden. This program will, during the next 4 years, study how the marine eco system works when the amounts of nutrient salts increase. Only after that can the reasons for eutrophication be examined, as well as what we can do about it here at home and in our contacts with our neighboring countries.

Footnote: The name of the research paper is "Eutrophication in Marine Environment" and may be ordered from the Environmental Protection Agency in Stockholm.

9843

CSO: 5000/2569

## EVERY THIRD STOCKHOLM CAR EMITS EXCESS CARBON MONOXIDE

Stockholm DAGENS NYHETER in Swedish 20 Apr 83 p 34

[Article by Astrid Johansson: "One Car in Three Violates Emissions Law"]

[Text] One out of three cars driving on the streets of Stockholm has a carbon monoxide level in its exhaust at idle that exceeds the legally prescribed limit by 4.5 percent of the volume. This was shown in a study undertaken by the Environmental and Health Administration in Stockholm.

Enforcement of the limit value must therefore be reinforced, the administration proposes.

Today, a so-called remark is made during the annual inspection only if the level exceeds 5.5 percent, and no one checks that the car owner actually does something about the matter. Not until the measured value exceeds 7 percent by volume does the car owner receive a summons for a new inspection.

A new inspection or perhaps a fine ought to be required if the carbon monoxide level exceeds 4.5 percent, the Environmental and Health Administration now suggests.

The administration also wants to lower the limit value at idle to 3-3.5 percent for cars built before 1976 or later.

### Tested Emissions from 1,053 Cars

From October through December last year a group from the administration in conjunction with the police tested emissions from 1,053 cars. About 20 sites in Stockholm were chosen, both in the city center and on the outskirts.

It was at this time that it was concluded that as many as one out of three cars exceeded the legally established limit. Cars built in Japan showed clearly better results than cars from other countries. The carbon monoxide content in the emission increases the older the car gets and the more it has been driven.

According to the so-called steering panel, automobile traffic in the inner city must be reduced by 20 percent, calculated on the basis of the 1976 traffic



volume, in order to eliminate the risk of exceeding the standard WHO (World Health Organization) value.

It is stated in the report on the study, that if car owners were to follow valid emission regulations for idling, the air quality in the city would improve so much as to equal a 20-percent reduction in traffic.

The Environmental and Health Administration therefore proposes that the police should be given the opportunity of conducting emission checks in major population centers, and that the criminal regulations for exceeding the limit value for carbon monoxide at idle should be reviewed. The matter was tabled at the meeting of the Environmental and Health Administration yesterday and will be brought up again on 17 May.

11949

CSO: 5000/2568

SWEDEN

## CONVERSION FROM OIL TO COAL CAUSING CONCERN OVER MERCURY

Stockholm DAGENS NYHETER in Swedish 20 Apr 83 p 5

[Article by Lasse Jonansson: "Mercury the Major Danger; Our Environment Can Tolerate Coal"]

[Text] The Swedish environment, and our health, tolerate that we replace some of the oil with coal for the production of district heating or electric power. This was evident from the study on the health and environmental effects of coal which was submitted to Energy Minister Birgitta Dahl.

During the debate before the popular referendum on nuclear power, coal was depicted as the big environmental criminal. Emissions of cancer-causing substances were said potentially to cause tens of thousands of deaths. Today, after very thorough studies of the effects of coal, one has a different view of the hazards.

"The emissions of mutagenic substances from large and well-run facilities are very small and the effect can be disregarded," is the opinion of the technical secretary of the study, Leif Olausson.

Now it is the mercury emissions that cause concern instead. These are much higher when using coal instead of oil, and even if the emissions can be limited by means of stack gas filtering, the panelists recommend that there should be further study of the mercury levels in fish and of the health hazards.

Cheaper

For over 3 years the panel--in the form of a project groups with representatives from the power industry, the municipalities, the Environmental Protection Agency and the Board for Energy Production Research--used 45 million Kronor in order to gather knowledge about the hazards of coal.

In the future the panelists see a coal-Sweden with a number of large plants, where electric power or district heat is produced without higher emissions to the environment than today. Furthermore, it will become cheaper even while using all the available filter technology, since the price of coal is a good bit below the price of oil.

Sulfur emissions during combustion of fossil fuels, which are responsible for a large fraction of the acidification, are not expected to increase even during extensive use of coal instead of oil. And emissions of the metals vanadium and nickel will, in contrast to mercury, decrease during combustion of coal.

A large number of environmental hazards are involved in handling coal, all the way from mining to storage of the ashes, but the panel is of the opinion that in all of these areas technology is available which will enable these problems to be overcome.

Transportation of coal to storage and plants could take place in such a way that the dust is eliminated, the noise can be limited and the coal can be purified before combustion. And during combustion the exhaust gases can now be filtered so well that it is believed that the proposal by the Environmental Protection Agency for maximum emissions of sulfur dioxide, nitrogen dioxide and particles can be adhered to.

#### Ashes a Problem

A large residue of ashes and other waste will result from the combustion of coal. Some of this can be used in cement and as filling material in concrete and roads, but large quantities must be collected at certain dumps. The ashes contain large amounts of toxic metals, and the panel suggests various methods for preventing the substances from leaking out into the environment,

The study will now be passed around for comment to a large number of advisory bodies, which before the end of the year are to express opinions on whether we should use more coal in order to reduce our dependence on oil and gradually be able to eliminate nuclear power.

11040

CSO: 5000/2568

END